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ABSTRACT

This packet contains an instructor's manual, instructor's resource package, and a student workbook for an 18-week course in foods and nutrition for students in grades 10-12. The curriculum has the following goals: to help students apply science concepts and principles to their daily lives; to provide students with accurate information about foods and nutrition as a basis for making informed food choices; to help students build consumer skills and workplace skills; and to heighten student awareness of the global context of food and of the many opportunities in nutrition-related careers. The instructor's manual contains the following: information on measuring student performance gains; required criteria for competency based education; a curriculum and duty and task crosswalk; a basic skills matrix; a profile of training mastery; and one set per unit of an instructor's guide, answers, and test code sheets. The instructor's resource package contains one set per unit of a learning activity package sheet, transparency masters, and written test. The student workbook contains one set per unit of objective sheets, information sheets, assignment sheets, and job sheets. The 11 units of the curriculum cover the following topics: valuing food in your world; examining food, nutrients, and the body; handling and storing food; using recipes; applying food science principles; profiling food products; making healthy food choices; developing consumer skills; planning home-prepared meals; serving and dining etiquette; and exploring careers. (KC)

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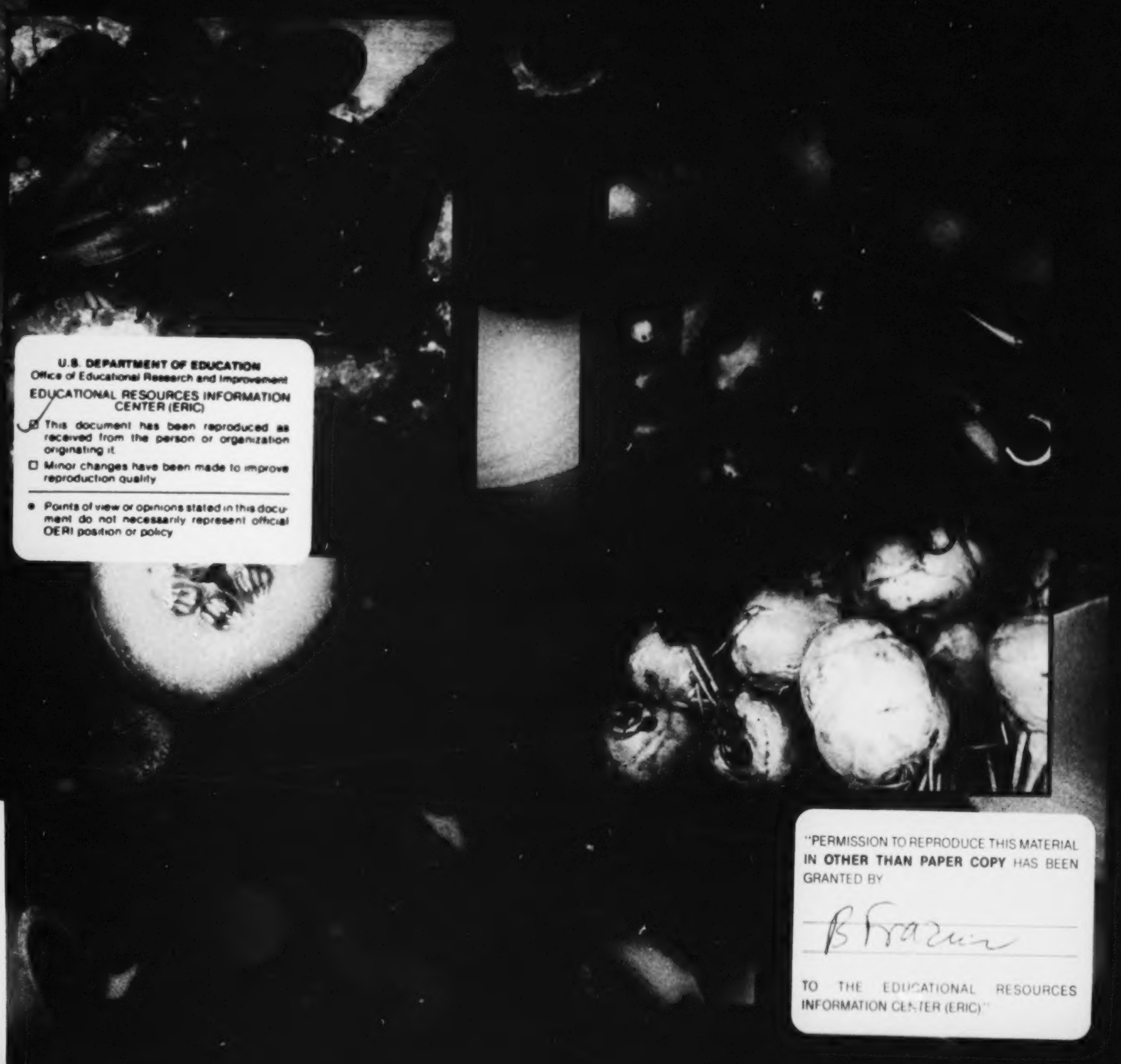
Food Science and Personal Nutrition



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CIMC
Instructor's Manual

96-011642

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One set per unit of the following components:

- Instructor's Guide
- Answers
- Test Code Sheets

Instructor's Resource Package

One set per unit of the following components:

- LAP Sheet
- Transparency Masters
- Written Test
- Handouts
- Other required media

Student Workbook

One set per unit of Objective Sheets, Information Sheets, Assignment Sheets, and Job Sheets for the following units (times in parentheses are suggested times):

UNIT 1 (1 week)
Valuing Food in Your World 1-1

UNIT 2 (1-2 weeks)
Examining Food, Nutrients, and the Body 2-1

UNIT 3 (1 week)
Handling and Storing Food 3-1

UNIT 4 (1-2 weeks)
Using Recipes 4-1

UNIT 5 (2-3 weeks)
Applying Food Science Principles 5-1

UNIT 6 (2 weeks)
Profiling Food Products 6-1

UNIT 7 (1-2 weeks)
Making Healthy Food Choices 7-1

UNIT 8 (1-2 weeks)
Developing Consumer Skills 8-1

UNIT 9 (1 week)
Planning Home-Prepared Meals 9-1

UNIT 10 (1 week)
Serving and Dining Etiquette 10-1

UNIT 11 (1 week)
Exploring Careers 11-1

FOREWORD

Not only is food necessary to sustain life, our personal choices about food affect our health and our quality of life. Redesigned food labels, changing regulations about nutritional content claims, recent research about nutritional needs, and other factors make our decisions about food more complex. They also create new learning opportunities. As a result, the study of foods and nutrition continues to yield many personal benefits. The study of *food science* expands our personal awareness about foods and nutrition. Food science encourages us to consider a wider range of issues, including food technology, food quality, and the scientific approach to issues of food production and supply. A curriculum which addresses both personal nutrition and food science can prepare students to make healthier and more informed food choices.

Food Science and Personal Nutrition is designed to achieve multiple goals. One goal is to help students apply science concepts and principles to their daily lives. While these concepts and principles are incorporated throughout the curriculum, many are highlighted in individual units. These units focus on food handling and storage, food products and processing, and application of specific food science principles. A second purpose of this curriculum is to provide students with accurate information about foods and nutrition as a basis for making informed food choices. Units which focus on this goal address healthy food choices and the relationships among food, nutrients, and the body. A third goal of *Food Science and Personal Nutrition* is to help students build specific consumer skills and skills important for success in the workplace. Using recipes, interpreting food labels, identifying strategies for purchasing and preparing foods, planning meals at home, applying a research-based food guidance system (the Food Guide Pyramid), and modelling appropriate rules of etiquette while eating at home or in professional situations are examples of units and concepts which address this goal.

In addition, this curriculum places food within a global context through specific objectives and learning activities throughout the curriculum. It also heightens student awareness of the many opportunities in nutrition-related careers. Career concepts and exploration exercises appear in many units. *Food Science and Personal Nutrition* is also designed to facilitate interaction among the student, the teacher, and the instructional materials. Specific objectives rely upon instructional videotapes to deliver vital concepts; others incorporate readings from expert sources in the fields of food science and nutrition.

Food Science and Personal Nutrition is planned for use in an in-depth, 18-week course for students in grades ten through twelve. The varied units and objectives in these materials should offer teachers many opportunities for team-teaching. We hope that this curriculum will enhance instruction and contribute to meaningful learning experiences for all students.

Roy Peters, Jr.
State Director
Oklahoma Department of
Vocational and Technical Education

Edna Ruth Mahaffey
State Supervisor
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Craig A. Maile
Instructional Development Specialist

CURRICULUM AND DUTY/TASK CROSSWALK

FOOD SCIENCE AND PERSONAL NUTRITION

TASK	CIMC UNIT/ COMPONENT
AWARENESS/ORIGINS	
Profile career opportunities in food science and nutrition.	Unit 1, Assignment Sheet 1
Profile nutrition-related businesses in the community.	Unit 1, Assignment Sheet 2
Analyze nutrition-related advertising.	Unit 1, Assignment Sheet 3
Profile personal food choices.	Unit 1, Assignment Sheet 4
Trace the origin of ingredients in a food item.	Unit 1, Assignment Sheet 5
Report on the food heritage of another country or U.S. region.	Unit 1, Assignment Sheet 6
Report on food supply factors and/or issues.	Unit 1, Assignment Sheet 7
FOOD, NUTRIENTS, AND THE BODY	
Calculate daily kilocalorie intake.	Unit 2, Assignment Sheet 1
Test for carbohydrates in foods.	Unit 2, Assignment Sheet 2
Test for the presence of fats in foods.	Unit 2, Assignment Sheet 3
Analyze the solubility of vitamins.	Unit 2, Assignment Sheet 4
Evaluate the nutritional qualities of a recipe from another country or culture.	Unit 2, Assignment Sheet 5
FOOD HANDLING AND STORAGE	
Interpret a food spoilage experiment.	Unit 3, Assignment Sheet 1
Demonstrate the importance of proper food handling using gelatin cultures.	Unit 3, Assignment Sheet 2

TASK	CIMC UNIT/ COMPONENT
Research a food-borne illness.	Unit 3, Assignment Sheet 3
Investigate trends and technologies in food packaging and storage.	Unit 3, Assignment Sheet 4
RECIPES	
Apply recipe math.	Unit 4, Assignment Sheet 1
Modify a recipe.	Unit 4, Assignment Sheet 2
Solve problems involving ingredient alternatives.	Unit 4, Assignment Sheet 3
Determine spice alternatives.	Unit 4, Assignment Sheet 4
Prepare a time-work plan.	Unit 4, Assignment Sheet 5
FOOD SCIENCE PRINCIPLES	
Demonstrate the roles of leavening agents.	Unit 5, Assignment Sheet 1
Demonstrate the roles of thickening agents.	Unit 5, Assignment Sheet 2
Test growing conditions for yeast.	Unit 5, Assignment Sheet 3
Bake a yeast bread product.	Unit 5, Job Sheet
Demonstrate the role of enzymes in food preparation.	Unit 5, Assignment Sheet 4
Compare the effects of cooking using various methods.	Unit 5, Assignment Sheet 5
Determine the pH of food items.	Unit 5, Assignment Sheet 6
Compare methods of preserving a food item.	Unit 5, Assignment Sheet 7
Analyze the effects of freezing on a food item.	Unit 5, Assignment Sheet 8
Analyze the impact of surface area on cooking rates and results.	Unit 5, Assignment Sheet 9

TASK	CIMC UNIT/ COMPONENT
Analyze the impact of temperature on cooking rates and results.	Unit 5, Assignment Sheet 10
FOOD PRODUCTS	
Evaluate selected dairy products.	Unit 6, Assignment Sheet 1
Demonstrate the roles of sweeteners in cooking.	Unit 6, Assignment Sheet 2
Profile a career involving agricultural food products and processing.	Unit 6, Assignment Sheet 3
HEALTHY FOOD CHOICES	
Interpret the "Nutrition Facts" label.	Unit 7, Assignment Sheet 1
Research the relationship between nutrition and wellness.	Unit 7, Assignment Sheet 2
Modify a recipe for a special situation.	Unit 7, Assignment Sheet 3
Analyze a daily diet for nutrient content.	Unit 7, Assignment Sheet 4
Develop a personal nutrition and wellness plan.	Unit 7, Assignment Sheet 5
CONSUMER SKILLS	
Interpret FDA regulations about the descriptive words used to label nutrient content.	Unit 8, Assignment Sheet 1
Locate taste receptors.	Unit 8, Assignment Sheet 2
Calculate the unit price of food items.	Unit 8, Assignment Sheet 3
Compare food products.	Unit 8, Assignment Sheet 4
Design a strategy for grocery shopping.	Unit 8, Assignment Sheet 5
Profile healthy choice alternatives for menu items.	Unit 8, Assignment Sheet 6
Design a nutrition education campaign.	Unit 8, Assignment Sheet 7

TASK	CIMC UNIT/ COMPONENT
MEAL PLANNING	
Compare convenience and home-prepared foods.	Unit 9, Assignment Sheet 1
Plan a one-day menu of healthy meals and snacks.	Unit 9, Assignment Sheet 2
Plan a complete one-meal menu typical of another country, culture, or U.S. region.	Unit 9, Assignment Sheet 3
Investigate food preparation methods in different countries and cultures.	Unit 9, Assignment Sheet 4
Prepare a food item representing another country, culture, or U.S. region.	Unit 9, Job Sheet
ETIQUETTE	
Set a table.	Unit 10, Job Sheet 1
Clear a table.	Unit 10, Job Sheet 2
Profile meal service and dining etiquette in another country, culture, or United States region.	Unit 10, Assignment Sheet
CAREER EXPLORATION	
Profile food science and nutrition-related businesses in the community.	Unit 11, Assignment Sheet 1
Summarize personal interests.	Unit 11, Assignment Sheet 2
Profile career opportunities.	Unit 11, Assignment Sheet 3
Compare career opportunities.	Unit 11, Assignment Sheet 4
Develop a personal career plan.	Unit 11, Assignment Sheet 5

Food Science and Personal Nutrition

Instructor's Manual

Upfront

Instructor's Guide

Answers

Test Code Sheets

Developed by the
Curriculum and Instructional Materials Center
for the Family and Consumer Sciences Education Division
Oklahoma Department of Vocational and Technical Education

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USE OF THIS PUBLICATION

INSTRUCTIONAL UNIT

A complete unit contains most or all of the following components: Objective Sheet, Instructor's Guide, Information Sheet, Assignment Sheet, Job Sheet (and Skill Test Record), Written Test, Answers (to Assignment Sheets and Written Test), Transparency Masters, Learning Activity Package (LAP) Sheet, Handouts, and other required media. These components are organized within three packages, as follows:

Instructor's Manual

- Upfront pages (title page, copyright page, table of contents, foreword, preface, acknowledgments, measuring student performance gains, required criteria for a competency-based education program, and corrections and suggestions)

- Curriculum and Duty/Task Crosswalk (as appropriate)

- Basic Skills Matrix
- Profile of Training Mastery
- One set per unit of:

  - Instructor's Guide
  - Answers
  - Test Code Sheets

Instructor's Resource Package

- One set per unit of:

  - LAP Sheet
  - Transparency Masters
  - Written Test

  ☑ **NOTE:** The three components listed above may be photocopied by the instructor.

- Handouts (as appropriate)

- Other required media (as appropriate)

Student Workbook

- Objective Sheets
- Information Sheets
- Assignment Sheets
- Job Sheets

Instructor's materials include the *Instructor's Manual*, the *Instructor's Resource Package*, and the *Student Workbook*.

Unit components are tied to measurable and observable learning outcomes. Instructors are encouraged to supplement unit components with other resources to make units as responsive to local conditions and student needs as possible.

Most units of instruction are designed for use in more than one lesson or class period. Instructors should determine the following for each unit:

- amount of material that can be covered in each class period;
- skills that must be demonstrated;
- supplies and equipment needed;
- amount of class time needed for demonstrations;
- amount of class time needed for student practice;
- supplementary materials to be ordered; and
- resource persons who must be contacted.

Objective Sheet (Student Workbook)

The Objective Sheet summarizes each unit for the student and the instructor. The Objective Sheet includes the following sections:

> **Introduction** – This section introduces students to the unit topic and its importance to them. The Introduction also relates the unit to students' experiences and their "need to know"; it helps capture their interest and focus their attention on the specific topic.
>
> **Prerequisites** – This section is included if any of the units in the book have prerequisites. A prerequisite may be one or more units from the same book or from other books which must be completed before beginning the unit. (If no prerequisites exist for any of the units in the book, this section is omitted.)
>
> **Focus Assignments** – Each unit has two Focus Assignments: Prereading and Writing. The Prereading assignment requires the student to read appropriate sections from unit references, from the *Instructor's Resource Package*, or from the student's textbook. The Prereading assignment leads into the Writing assignment, which assigns students a short written activity based on the Prereading assignment. Because the Focus Assignments help promote the use of basic skills, they include appropriate basic skill icons and enablers. (Activities for the basic skills associated with the Focus Assignments are included in the Instructional Supplement in the Instructor's Manual.)

Unit Objective – The Unit Objective states the overall goal of the unit. It identifies what the student will be able to do after successfully completing the unit, as well as the standards used to measure student performance.

Specific Objectives – The Specific Objectives outline the teaching sequence of the competencies required to reach the Unit Objective.

The Specific Objectives on the Objective Sheet should be emphasized to all students at the start of each unit and throughout the teaching/learning process. This will help answer student questions about performance requirements for each unit. Specific Objectives can also assist instructors in determining teaching strategies and instructional methods. Instructors should prepare for each unit by deciding how each objective could best be taught.

Instructors should modify, delete, or add objectives to meet the needs of students and the community. When objectives are added, the instructor should remember to provide the needed information, Assignment and/or Job Sheets, and criterion-referenced test items.

Information Sheet (Student Workbook)

The Information Sheet provides the "must know" content essential for meeting the cognitive objectives in the unit. Information is usually presented in print on the Information Sheet, but may also be presented in other formats, if appropriate, such as on videotape, software, or other media. (Additional formats for presenting the Information Sheet objectives allow this component to be interactive.)

Many objectives on the Information Sheet begin with a "Words You Should Know" section. This boxed item identifies terms relating to the objective, and gives a definition for each. Terms in the "Words You Should Know" boxes are tested only indirectly with the objective information (not on the Written Test as a matching exercise).

The Information Sheet may include clarifying NOTES and EXAMPLES, as needed. In the left column, students and instructors are reminded of the optional and/or required activities and resources available for a particular objective.

Students should read the Information Sheet for each unit before it is discussed in class. Space is provided in the margins for both students and instructors to add notes that clarify and/or expand upon the information presented.

Assignment Sheets (Student Workbook)

The Assignment Sheets address the learning levels at or above the application level of Bloom's taxonomy. They allow students to perform non-psychomotor activities related to occupational tasks. Assignment Sheets also provide students with an opportunity to use higher-order thinking skills, such as problem-solving, synthesizing, analyzing, and evaluating. In addition, they may provide opportunities for cooperative learning and more detailed oral/written communication activities.

Assignment Sheet activities can be "paper and pencil" activities, as well as those using computer software, videotapes, models, handouts, or other resources as appropriate. All Assignment Sheets include basic skills icons and enablers (identified in the left margin).

Job Sheets (Student Workbook)

Job Sheets give students step-by-step procedures for performing manipulative or psychomotor occupational tasks or jobs. The Job Sheet also functions as a Skill Test Record, facilitating the instructor's evaluation of each student's performance. Both the process and the end-product are evaluated. Diagrams, illustrations, and photographs are included, as needed, to assist students in completing the job.

Individual Job Sheets may include various warnings written to conform to the latest specifications of the American National Standards Institute (ANSI). DANGER is used if the situation *will* lead to death or serious injury if not avoided; WARNING is used if the situation *could* lead to death or serious injury if not avoided; CAUTION is used if the situation could lead to minor or moderate injury; NOTICE is used if the situation could cause property damage only; and IMPORTANT is used to refer to operating or maintenance tips. Each type of warning appears on the Job Sheet with an ANSI symbol.

The instructor should demonstrate the procedure outlined in each Job Sheet. Instructors may also have to localize specific procedures.

Instructor's Guide (Instructor's Manual)

The Instructor's Guide leads instructors step by step, objective by objective through the unit. It recommends instructional strategies for the Focus Assignments and for each of the Specific Objectives. Resources and activities are labeled "R" for "Required" or "O" for "Optional." Optional and Required resources (publications, videos, computer software, and other media) are listed, as well as unit references. These resources can be used to supplement the instructor's knowledge of the subject area and to help students with particular interests or occupational objectives. In addition, the Instructor's Guide provides guidelines for evaluating student performance.

Instructors should study the Instructor's Guide before introducing the unit and allow time to obtain supplemental materials, prepare audiovisual materials, and contact outside resource persons. Specific tasks of the instructor will vary with each unit.

Answers (Instructor's Manual)

This component lists the answers to all of the Assignment Sheets and the Written Test questions.

Test Code Sheet (Instructor's Manual)

The Test Code Sheet matches Written Test questions to objectives. Basic skills codes are listed in chart format for each question. Each unit has a Test Code Sheet. For more information, see the CIMC publication *Measuring Learning & Competency Gains: The Pretest/Posttest Approach.*

LAP Sheet (Instructor's Resource Package)

The LAP (Learning Activity Package) Sheet for each unit allows the instructor to individualize instruction for some or all students. The LAP Sheet guides the student through each unit step by step, ensuring that the student receives the necessary instruction.

Transparency Masters (Instructor's Resource Package)

Transparency Masters are provided so that instructors can make transparencies to accompany specific units. Transparencies allow students to *see* as well as hear the information being presented, thus reinforcing the learning process. They also direct attention to the topic under discussion. Transparencies should be made from the Transparency Masters and placed where they will be readily available when needed. Transparencies should be left on the screen only when the related topics are under discussion.

Written Test (Instructor's Resource Package)

The Written Test provides criterion-referenced evaluation of the Specific Objectives from the Information Sheet (Assignment Sheet and Job Sheet objectives are not evaluated by the Written Test). If instructors have added, deleted, or modified any objectives, appropriate changes should be made to the Written Test as well.

The Written Test serves as both a pretest and a posttest. In order to measure and document student competency gains as required by the latest Carl Perkins regulations, and as outlined in the Oklahoma-developed system of standards and measures, it is *essential* that the same test be used as a pretest and as a posttest. If instructors choose to use tests other than the Written Test, they should make sure that the same instrument is used for each activity – pre- and posttest.

The Written Test may be photocopied for classroom use.

A detailed explanation of the Oklahoma plan for standards and measures and the Carl Perkins requirements is included in the CIMC publication *Measuring Learning & Competency Gains: The Pretest/Posttest Approach.* This booklet – and accompanying software to assist in calculating and recording student gains – are available to Oklahoma instructors through their school's vocational testing liaison.

To further assist instructors, the CIMC develops Test Code Sheets for each Written Test in its more recent publications, including this one. (These sheets are explained in detail in the publication mentioned above.) The Test Code Sheets assist in verifying that the Written Test is a valid instrument for measuring student learning and competency gains.

PROFILE OF TRAINING MASTERY

The Profile of Training Mastery documents student performance. Each profile lists the competencies covered in the curriculum, and provides space for recording information about the student and the student's mastery of each objective. Space is also provided for recording pre- and posttest scores, modified gains, and instructor comments. A blank Profile of Training Mastery is included with the instructor components of each curriculum. It may be reproduced for each student.

PAGE NUMBERING

Each unit and each page in a CIMC publication has a number, shown in arabic numerals. The page number gives the package title, the book title, the component name, the unit number, and the page number within the unit. For example, the page number for page 1 in Unit 6 of the *Student Workbook* would appear as follows:

STUDENT WORKBOOK – Food Science and Personal Nutrition
OBJECTIVE SHEET - **CIMC** - 6 - 1

METHODS OF DISSEMINATING MATERIAL

For best results, provide each student with a copy of the Student Workbook. Students should be allowed to keep their Workbooks at the end of the course or training program.

TEACHING METHODS

Keeping students motivated is a challenge. Supplement each unit with current information, personal experiences, and other information. In a group setting, prepare for each unit by determining the best way to teach each objective, and allow for student input. For individualized instruction, provide opportunities for the student to become involved in planning and being responsible for his or her own education.

BASIC SKILLS IN CURRICULUM

The CIMC has always been mindful of the importance of reinforcement (and sometimes remediation) of students' academic skills as they progress through vocational training, and has always included activities in its materials to enhance and promote use of these skills.

Recent state and federal legislation mandates vigorous basic skills development in vocational education in the wake of demands by industry that workers *must* be academically, as well as technically, competent, given the nature of the highly complex work place. In response, the CIMC has taken the following steps to document that, indeed, the instructional materials *do* combine academic skills training with the vocational training. In addition, concerted efforts have been made to "beef up," or enhance the basic skills instruction already present. Following is a brief description of those processes:

Basic Skills Icons and Enablers

To assist teachers and students in identifying activities that promote basic skills development, the CIMC has implemented a marking system that uses simple graphic symbols, or icons, and a list of specific tasks, or enablers, to identify the basic skill or skills that are called for in each job or assignment sheet.

Each of the nine broad skills areas–reading, writing, mathematics, science, oral communication, interpersonal or relating, creative thinking and problem solving, employability, and social studies–is represented by the icon presented below.

Reading
Science
Creative Thinking/ Problem Solving
Writing
Oral Communication
Employability
Math
Interpersonal or Relating
Social Studies

When an activity involving one of these basic skills is identified, the corresponding icon is placed in the left-hand margin of the job or assignment sheet. The basic skills training is further defined by retrieving the specific, or enabling, skill that is required by consulting a list of over two hundred and fifty enablers that has been compiled and grouped with each general basic skill. This enabling skill is placed directly below the icon.

As an example, an exercise that requires a student to conduct library research would make necessary the use of specific reading comprehension and research and reference skills. The basic skills that the exercise promotes would be depicted in the left-hand margin as follows:

ASSIGNMENT SHEET — PLANNING LIVING SPACE FOR HUMAN NEEDS — 1

Name ______________________________ Score __________

OBJECTIVE 10 **Define personal territory.**

INSTRUCTIONS

Reading Comprehension
- Gain factual information

Functional Reading
- Follow written instructions
- Use content area vocabulary

Language
- Use standard grammar, spelling, and capitalization
- State ideas clearly

- As discussed in objective 1, each person has an invisible "space bubble" or comfort zone. A comfort zone is the space between oneself and others that brings a feeling of well-being. When one's comfort zone is crowded or invaded, discomfort often results. Therefore, personal territory needs should be a prime consideration when planning living space.
- For each of the following situations, draw your estimated comfort zone around the figures provided.
- Indicate how many inches from your body the comfort zone extends.
- Consider how that comfort zone changes in different situations. Answer the questions that follow.

Basic Skills Documentation Matrix

Another component of the CIMC basic skills instructional plan is the "Basic Skills Documentation Matrix." The matrix graphically summarizes the basic skills training included in the vocational program, unit by unit. It should be helpful to teachers in planning their instruction, and to administrators as documentation that basic skills **are** being addressed during the vocational training.

The matrix for this publication is included as an 8½" by 11" foldout in this *Instructor's Manual.*

Matrices have been developed for most CIMC publications. For more information on those available for other programs, call the CIMC at 1-800-654-4502.

MEASURING STUDENT PERFORMANCE GAINS

When you examine this book, you will notice that separate written pretests are no longer included in the units of instruction. Each CIMC unit now contains only a single Written Test. This test should be used as **both** pretest and posttest by giving it once before students start a unit and again when they have completed the unit.

The reason for using a single instrument as both pretest and posttest is so that direct comparison of each student's competencies before and after instruction can be made accurately. This comparison enables precise calculation, documentation, and evaluation of student **performance gains**.

Accurate performance gains analysis is an important requirement of the new Carl Perkins legislation for vocational education. Teachers can make an important contribution to the performance accountability mandated by the new federal legislation by carrying out accurate performance gains analysis for their students, and making this data available to students, parents, and administrators.

This analysis is easy to do and requires only simple calculations and record keeping. Detailed information regarding performance gains analysis is contained in the CIMC publication, *Measuring Learning & Competency Gains: The Pretest/Posttest Approach.* In addition, the CIMC has developed a computer program, CARL, which will perform all necessary calculations and will print out a record form of all information required for gain score analysis. Copies of CARL and the publication are available through your local testing liaison (in Oklahoma), or from the CIMC at 1-800-654-4502.

REQUIRED CRITERIA FOR A COMPETENCY-BASED EDUCATION PROGRAM

Criterion	Discussion	CIMC component meeting criterion
1. Instruction is based on clearly-stated learning objectives that are: a) observable and measurable, and b) communicated in writing to students before instruction begins.	Learning objectives drive CBE. Objectives are the "competencies" that learners must achieve. Each objective must clearly state what *learners* must *do* to demonstrate acquired skill or knowledge. Verbs in learning objectives are active and precise, stating the exact performance expected of learners. The objectives should also specify the standard or level of performance required. Objectives can be at any level of Bloom's Taxonomy and can include the cognitive, psychomotor, and affective domains. Higher-order cognitive skills should be included.	Objective Sheet
2. Instruction is aligned with the stated learning objectives	In CBE, the objectives specify what is taught. "Content" should relate to one or more objectives. The curriculum should cover all objectives with relevant information.	Information Sheet
3. There is a student evaluation system that is: a) criterion-referenced, and b) aligned to the learning objectives and the curriculum.	In CBE, the aim is to bring the performance of *all* learners up to a pre-defined standards and competencies. Learners work on each competency until they achieve "mastery"; the evaluation system should test and record this mastery. Learners can restudy and retest as often as needed. Specific remediation activities should also be available to learners when needed. The evaluation system focuses on what each student has achieved, not on what the instructor has "taught." The "constant" in CBE is student performance; the "variables" are time and resources. (This differs from traditional systems where learners get one chance at mastery; some succeed and some fail. In such systems, time and resources are constant and student achievement is variable.) If an evaluation is criterion-referenced, successful learner performance is defined by (or *referenced* to) mastery of pre-set objectives and standards (or *criteria*): there must be a careful match (or *alignment*) between what the student should master (objectives), what is taught (curriculum), and what is tested. Objectives, curriculum, and evaluation system must all match.	Written Test and Job Sheet/Skill Test

Criterion	Discussion	CIMC component meeting criterion
4. There is an observable management system of cognitive skill practice that provides for, promotes, and documents mastery learning.	For both cognitive and psychomotor skills, a CBE program must have a system of maintaining records of which skills and activities each learner has completed, which ones are in progress, and which ones have not yet been completed. Completion means "mastery"; no skill is completed until the learner has achieved the mastery level. The record system should promote feedback on student skill attainment to *both* instructor and learners, provide for remediation as needed, and encourage reevaluation of learner performance until mastery is achieved. Appropriate remediation strategies often should consider learning styles and other individual differences among learners. Learners should work on skills and activities until they achieve mastery. They should not be "passed on" without mastery. While learners may move ahead and work on other skills (i.e those for which all prerequisite skills have been mastered or those without prerequisites), work should also continue on the skills still requiring mastery. Students should not attempt higher-order skills until all prerequisite skills are mastered.	Assignment Sheet
5. There is an observable management system of psychomotor skill practice that provides for, promotes, and documents mastery learning.		Job Sheet/Skill Test
6. Skill mastery records are maintained for each learner, and learners have access to and make use of these records to monitor their skill acquisition.	Records should clearly indicate the skills each learner has mastered. One such record should profile or list the competencies that have been mastered and those to be mastered. Other performance indicators can be added and kept in a portfolio for each learner. Learners should have ready access to their portfolios to monitor their own progress in skill mastery and competency attainment.	Profile of Training Mastery

CORRECTIONS AND SUGGESTIONS

The Curriculum and Instructional Materials Center (CIMC) wants to provide vocational instructors and students with accurate and effective materials. Although the CIMC strives to maintain the highest standards of development and production, oversights sometimes do occur. If you find any errors in this or other CIMC publications, or have suggestions for improving their usefulness in vocational programs, please notify the CIMC staff. To do this, please identify the page(s) affected and write any comments to clarify the error or suggestion. Use the spaces below. Then, simply fold (bottom of page *upward*, top *downward*), secure, and mail.

This information will be used to correct the publication before the materials are reprinted. To ensure that the material is updated on a timely basis, notify the CIMC of necessary corrections as soon as possible after discovering the error.

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INSTRUCTOR'S
GUIDE

VALUING FOOD IN YOUR WORLD

1

Required Activities and Resources (R)

These are fully integrated components of this CIMC curriculum. They are usually packaged in or with the curriculum and are essential in meeting the learning objectives. To individualize this unit, use the LAP Sheet supplied in your resources.

- Reproducible Handouts and Transparency Masters are included in the Instructor's Resource Package. Handouts should be copied for all students. Transparency Masters should be used to make overhead transparencies for use during instruction. A small copy of each Transparency Master appears in the student's Information Sheets.
- Non-reproducible resources are included in the student's curriculum.

Optional Activities and Resources (O)

These are suggested high-interest activities to help deliver learning objectives to students or to let students achieve objectives in an applied context. Select as many as you wish to use. Some activities use extra resources for further information about unit content. You can make them available in the classroom for in-depth study or optional activities, but their use is not required for meeting CIMC unit objectives.

FOCUS ASSIGNMENTS

Prereading

R Have the students read Handout 1, "I'm Hungry."

Writing

R Have the students write a short (one paragraph to one page) discussion about the value of food to an individual and a nation and the circumstances that may contribute to hunger in underdeveloped countries.

GENERAL INSTRUCTIONS

Assignment Sheets

- R Review the directions and any specific guidelines.
- R Make certain that any needed materials from the Instructor's Resource Package are available.
- R Have the students complete the Assignment Sheet. Evaluate each student's performance and provide reteaching and retesting as necessary. Have the students repeat the Assignment Sheet until they achieve mastery.
- R Complete each student's Competency Profile.
- O Have the students volunteer to read aloud the directions and any special guidelines.
- O Return the completed Assignment Sheets to the students so that they may use them for later reference if needed.

Job Sheets

- R Review the introduction and evaluation criteria for the Job Sheet. Remind the students that they should not fill in the blanks in the Yes/No columns.
- R Review and explain all general guidelines, safety cautions, and warnings.
- R Make sure that all tools, equipment, and supplies are available.
- R Demonstrate each of the procedures outlined in the Job Sheet.
- R Allow the students to practice the Job Sheet skills before skills testing. Coach, correct, and supervise as necessary.
- R Have the students complete the Job Sheet. Evaluate each student's performance and provide remediation as necessary. Have the students repeat the Job Sheet until they achieve mastery.
- R Complete each student's Competency Profile.
- R Return the completed Job Sheets to the students so that they may use them for later reference if needed.
- O Have the students volunteer to read aloud the job guidelines, cautions, and warnings.

LAP Sheets

The LAP Sheets are an optional component that can be used to individualize instruction. The following instructions should be followed only if you are using the LAP Sheets.

R Explain the specific procedures to be followed to the students before they begin using the LAP Sheet. Be sure that each student understands the procedures for using the LAP Sheet.

R If you want the student to complete any of the assignments on the LAP Sheet that are labeled optional, assign these to the student. Be sure to provide any needed resources.

OBJECTIVE 1

Define food science.

R Use Transparency Master 1 to illustrate the scientific method.

O Give examples of issues or problems related to food science. Have the students create a problem related to food science. Discuss how the scientific method can help in solving the problem. Have students give a short oral report of their problem and solution.

O Ask the students to think of ways new discoveries can benefit society.

O Give examples of recent discoveries or developments in food science.

OBJECTIVE 2

Define nutrition.

R Have the students write a short paper on food science and nutrition. The paper should include recent developments in the fields of food science and nutrition and explain how they benefit society.

O Ask the students to list reasons it is helpful to study nutrition.

O Discuss the difference between food science and nutrition.

OBJECTIVE 3

Profile career opportunities in food science and nutrition. (Assignment Sheet 1)

R See the general instructions for all Assignment Sheets.

R Show the video *Careers in Nutrition.*

R Discuss the careers featured on the video and other careers relating to nutrition and food science. Include educational requirements in the discussion.

R Bring newspaper or trade journal advertisements that relate to nutrition-related jobs. Discuss the requirements and training needed for the job, salary ranges, and working conditions of the jobs.

R Use Transparency Masters 2 and 3 to illustrate careers and professional organizations. Distribute Handout 2.

O Have guest speakers come to speak to the class. Try to get a variety of professionals to cover the diverse nature of the careers in food science and nutrition.

O Discuss reasons for acquiring work experience in the field.

O Obtain the Oklahoma *Career Search* book and software to help supplement this Assignment Sheet. Check with your school librarian or counselor.

OBJECTIVE 4

Profile nutrition-related businesses in the community. (Assignment Sheet 2)

R See the general instructions for all Assignment Sheets.

R Have the students (individually or in teams) select two nutrition related businesses in the community to profile. The interviews may be in person or by telephone and should cover the questions in the Assignment Sheet. Review proper interview techniques with the students. Have the students write a one-page summary of each business interview. Collect and compile all of the business summaries into a notebook for the students to reference. If your community has very few nutrition-related businesses, ask a speaker to visit your class from a local business. All students could then complete their own assignments based on the speaker's presentation.

O Trace suppliers connected to a particular business. Emphasize that one business affects many others.

O View a television food show with the class. Discuss the business of food shows.

O Invite local business entrepreneurs to talk to the class. Have them explain how they started their businesses.

O Videotape the entrepreneurs speaking about their jobs and show the video tape to students who may miss the speaker or must complete the unit as a LAP.

OBJECTIVE 5

Distinguish between the primary and secondary needs met by food.

R Discuss how our food needs differ as we get older. Have the students write a short paper on the subject.

R Use Transparency Master 4 to illustrate the lifecycle.

O Discuss the difference between *hunger* and *appetite*.

O Discuss *anorexia nervosa* and *bulimia*. Emphasize the dangers of these conditions. See Unit 7 for a brief description of each condition.

OBJECTIVE 6

Explain factors that influence food choices.

R Use Transparency Master 5 to illustrate food choices.

O Have the students give examples of their favorite and least favorite foods. Ask students to share their reasons for liking or disliking them with the class.

O Have the students conduct a poll of friends and family members about their personal food choices, then tally the results for the class.

O Ask the students to think of a memorable meal and explain why it was memorable in a short oral report.

O Invite a school nurse or local doctor to discuss why people overeat.

O Discuss the convenience foods students use most and under what circumstances they use them.

OBJECTIVE 7

Analyze nutrition-related advertising. (Assignment Sheet 3)

R See the general instructions for all Assignment Sheets.

R Use Transparency Master 6 to illustrate advertising appeals.

R Compare the answers in class and discuss the implications.

R Have the students (alone or in teams) write an advertisement for a food product and present it in front of the class. Ask the class if the product would sell.

O Lead a class discussion on truth in advertising and false claims.

O Discuss the beneficial information an advertisement can give.

O Discuss the money that is spent on advertising. Locate current figures spent for advertising during features such as the Super Bowl.

O Discuss buying a product due to advertising and then being disappointed. Have the students give examples of their own experiences.

O Tape television programs at different times of day (midday, Saturday morning, late evening) and either make the tapes available for students to use (if they do not have a television) or discuss the tapes in class.

OBJECTIVE 8

Profile personal food choices. (Assignment Sheet 4)

R See the general instructions for all Assignment Sheets.

R Have the students keep a food diary for one week using the sheet in their workbooks. The students should record what influenced their food choices each time they log an entry.

R Ask for volunteers to discuss their food diaries in class. Emphasize how important it is to know *what* you eat and *why*.

O Have the students give a short oral report on how they could improve their food choices. The students should use their food diary to identify poor eating patterns. Emphasize the importance of making heathy food choices.

O Discuss food fads.

O Have the students give a short oral report on some common food customs (and the reasons behind them) from their own cultural background.

OBJECTIVE 9

Identify the global origins of some foods and ingredients popular in the United States.

R Lead a discussion of students' favorite foods and ingredients that originated in another country. Use Transparency Master 7 and the list of countries to stimulate the discussion. Have the students record the foods in their workbooks.

O Team-teach this objective with your school's foreign language instructor.

O Tour a local supermarket with the class. Identify ethnic foods and spices. Check in the canned and frozen foods, produce and convenience food departments.

O Ask foreign exchange students to speak to the class about the foods popular in their countries.

O Ask if any of the students have visited another country. Have them share their experiences in class. Inquire about the types of food they ate, and the differences and similarities to U.S. foods.

O Look in the telephone book for restaurants in your area. Count how many of the foods featured are from another country.

OBJECTIVE 10

Trace the origin of ingredients in a food item. (Assignment Sheet 5)

R See the general instructions for all Assignment Sheets.

O Invite a local chef to explain the use of ingredients in ethnic dishes served at his or her restaurant.

O Group according to the country of origin. Compare ingredients in each recipe. Have the students find the similarities in the recipes.

O Assign the students one food item each. Have them prepare a display of the ingredient showing where it is from, who uses it, and in what type of dishes it is used.

O Ask each student to create an advertisement for a restaurant representing a specific country.

OBJECTIVE 11

Explain the role of environment and culture in the development of United States regional foods.

R Use Transparency Master 8 to illustrate regions of the United States.

O Lead a class discussion on Colonial life and foods in Colonial America.

O Have the students name and discuss ethnic festivals in your area or others they have been to.

OBJECTIVE 12

Identify regional and specialty foods in the United States.

- O Discuss which foods are grown and produced locally. Have the students think about how locally grown foods influence what they eat.
- O Ask the students to explain how improved packaging and transportation of foods have helped to eliminate definitions of U.S. regions based on regional foods.

OBJECTIVE 13

Report on the food heritage of another country or U.S. region. (Assignment Sheet 6)

- R See the general instructions for all Assignment Sheets.
- O Plan a complete menu with the class using food from a region or country of their choice. Have each student select a dish to prepare at home and bring to class.
- O Invite guest speakers from other countries.

OBJECTIVE 14

Explain factors affecting the global food supply.

- R Use Transparency Master 9 to illustrate world hunger.
- O Team-teach this objective with geography, foreign language, and/or agricultural education instructors.
- O Discuss the factors that could affect the food supply to your area. Ask the students to think about what would happen if food supplies were cut off in your area.
- O Discuss a recent natural disaster in the world. Bring newspaper or magazine articles. Discuss the effects on food supply where the disaster occurred.
- O Discuss factors leading to hunger in underdeveloped nations. Have the students write a paragraph on why they should be concerned about food shortages in other parts of the world.

OBJECTIVE 15

Report on food supply factors and/or issues. (Assignment Sheet 7)

- R See the general instructions for all Assignment Sheets.
- O Discuss which countries the U.S. has free trade agreements with and which ones have restrictions or embargoes on their trade with the U.S.

EVALUATION

Pretest

- Use the unit Written Test for *both* the pretest and posttest. Give the students the pretest before they begin the unit.
- You may wish to use the CIMC publication *Measuring Learning and Competency Gains: The Pretest/Posttest Approach* for instructions and suggestions on giving pretests and using the results. Information for ordering this material is included in the optional resources section.
- Use pretest results to guide individual students in progressing through the unit, doing enrichment work, or moving to the next unit.

Focus Assignment

- Use an informal evaluation of the focus assignments as a diagnostic tool for determining if any students need extra help in reading comprehension or writing skills. Refer these students to their English instructor, Learning Resource Center, or Educational Enhancement Center.

Assignment Sheet

- Evaluate students on Assignment Sheet activities. Students must repeat an Assignment Sheet until they have mastered the activity.
- Complete each student's Competency Profile.

Skill Test

- Explain to the students that they will be asked to demonstrate the procedures on the Job Sheets as a skills test.
- Describe the rating scale used on the skills test.
- Reteach and retest as necessary.
- Complete each student's Competency Profile.

Posttest

- After they have completed the unit, give students the Written Test again.

- Explain to the students that they will be asked to demonstrate on the Written Test actions listed in the specific objectives.

- You may wish to use the CIMC publication *Measuring Learning and Competency Gains: The Pretest/Posttest Approach* for instructions and suggestions on giving posttests and using the results. Information for ordering this material is included in the optional resources section.

- Reteach and retest as necessary to meet individual student needs and state standards for student learning and competency gains.

- Complete the appropriate sections of the Competency Profiles.

- Review individual and group performance to evaluate teaching effectiveness. Adjust scope, sequence, or instructional methods for additional lessons as required.

REQUIRED RESOURCES

The items marked with an asterisk are included in the Instructor's Resource Package.

Publications

- "I'm Hungry." Handout 1.*

- "Professional Organizations." Handout 2.*

Videos

- *Careers in Nutrition.* Creative Educational Video. Available from the CIMC. (Must be purchased separately.)

OPTIONAL RESOURCES

Publications

- *Measuring Learning and Competency Gains: The Pretest/Posttest Approach.* Stillwater, OK: CIMC, Oklahoma Department of Vocational and Technical Education, 1992. For ordering information call 800-522-5810.

Computer Software

- Career Search. Stillwater, OK: Oklahoma Department of Vocational and Technical Education.

UNIT REFERENCES

Publications

- Duyff, Roberta et al. *Modern Meals.* Mission Hills, California: McGraw Hill, 1990.
- *Food Science.* Burnsville, MN: Interdisciplinary Resources Incorporated, 1993.
- Kowtaluk, Helen and Kopan, Alice O. *Food for Today.* Mission Hills, CA: Glencoe, 1990.
- Largen, Velda L. and Deborah L. Bence. *Guide to Good Food.* South Holland, IL: The Goodheart-Wilcox Company, Inc., 1992.
- Medved, Eva. *The World of Food.* Englewood Cliffs, New Jersey: Prentice Hall, 1990.
- Vernon, Alice. *Foods.* St. Paul, Minnesota: E.M.C. Corporation, 1988.

Videos

- *Careers in Nutrition.* Lubbock, TX: Creative Educational Video.

ASSIGNMENT SHEETS

OBJECTIVE 3

Assignment Sheet 1

Part 1

Student answers to questions 5, 1, and 2 will vary.

3. Answer should include:

    - work experience
    - sound science base - math, chemistry, biology

4. Answer should include any two of the following:

    - educating the public about nutrition
    - designing food products and packages
    - identifying new food sources
    - developing and testing food additives
    - discover new methods to preserve food
    - determining food safety standards

6. Answers will vary.

Part 2

Student answers will vary. Students should address the questions listed.

OBJECTIVE 4

Assignment Sheet 2

Student answers will vary. Students should address the questions listed.

OBJECTIVE 7

Assignment Sheet 3

Student answers will vary.

OBJECTIVE 8

Assignment Sheet 4

Student answers will vary. Students should keep a food diary for one week in Part 1 and address the questions in Part 2.

OBJECTIVE 10

Assignment Sheet 5

Student reports will vary. Evaluate each student's oral report.

OBJECTIVE 13

Assignment Sheet 6

Student answers will vary. Students should address the questions listed in their oral reports.

OBJECTIVE 15

Assignment Sheet 7

Student answers will vary. Students should research two factors in their reports.

WRITTEN TEST

OBJECTIVE 1

- *Food science is an applied science, one that combines theory and practical application. It combines knowledge of physical, biological, and chemical science and engineering to develop new products, packaging, and methods of processing food.*

OBJECTIVE 2

- The food you eat and the scientific understanding of how the body uses the nutrients in the food.

OBJECTIVE 3

Evaluated on Assignment Sheet 1.

OBJECTIVE 4

Evaluated on Assignment Sheet 2.

OBJECTIVE 5

1. S
2. S
3. P
4. P
5. S
6. S
7. P
8. P

OBJECTIVE 6

Any five (5) of the following:

- **Advertising** – Advertisements have a strong influence on food choices. Magazines, television, and radio ads for foods appeal to our tastes, emotions, attitudes, and lifestyles. Ads also encourage you to try a new product or continue using one. A catchy phrase or slick-looking package can help to make food seem more desirable.

- **Availability** – Availability has a great impact on your choice of food. Seasonal foods, such as pumpkins, are available only at certain times of the year. Weather affects not only the availability but the abundance and price of food. Government policies and the economy also affect the supply and price of food.

- **Convenience** – In a society that is always on the go, convenience is a high priority. Convenience foods are quick and easy for people who are busy and have little time or desire to prepare food themselves.

- **Cultural and religious influences** – Shared language, customs, and values of a group have a strong influence on a person's preference and choice of food. Ethnic foods from different cultures vary considerably in ingredients, taste, texture, and presentation and may not appeal to people who are not familiar with it. Religious beliefs may restrict the consumption of certain foods. They also might direct which food should be eaten on special occasions.

- **Health** – A person's health may influence food choices. Special diets are often required for people with diabetes, heart disease, food allergies, and other medical problems. People who are trying to lose or gain weight may follow strict diets.

- **Personal preference** – Food choices are personal and not always sensible. You may like some types of food and dislike others. The tastes of sugar and salt are widely shared preferences of many people. People tend to like foods associated with happy occasions. You may attach an intense dislike to foods you ate when you were sick or were forced to eat.

- **Personal resources** – Personal resources such as finances and education can play a part in determining the food you eat. If you would *like* to order a steak dinner but can only *afford* a hamburger, your food choice is influenced and restricted by finances. The more you know about food, nutrition and health, the better able you are to make wise food choices. Knowledge of the nutritional value of food may help you avoid illness and improve your physical well-being.

- **Social influences** – Families play a large part in your eating habits and food choices. A health-conscious family may discourage junk food and promote nutritious snacks and meals instead. Peer pressure and the need to conform may influence what you eat. Friends may also encourage or discourage you.

- **Trends and technology** – Technological advances have greatly improved the availability of food. Processing, storing, and transportation make most foods available around the world. Trends in society affect consumer demand which influences what kind of foods manufacturers produce and market. For example, the fitness and wellness trend has increased the production and consumption of fat-free and low-fat foods. Trends in lifestyle, family structure, and living arrangements also influence food choices.

OBJECTIVE 7	**Evaluated on Assignment Sheet 3.**
OBJECTIVE 8	**Evaluated on Assignment Sheet 4.**
OBJECTIVE 9	Answers may vary. Foods and ingredients should be taken from class discussion.
OBJECTIVE 10	**Evaluated on Assignment Sheet 5.**

OBJECTIVE 11

Answers may vary but should include a short paragraph covering the main points in the text below:

Environment

- Geography and climate – Differences in climate and type of land and soil created differences in types of food available to Native Americans and to settlers. In the Southwest, peppers and beans were abundant. The Northwest's staple food was from the ocean. In the Midwestern regions corn, wheat, and buffalo were considered staple foods. The people in the Northeast grew corn, pumpkins, fruits, and berries and had prosperous hunting grounds. Many of these foods are still associated with certain regions of the country. The climate also played a role in how foods were prepared and stored. To last the long, cold winters in the Northeast, foods were usually dried, smoked, or salted. Southern regions enjoyed foods prepared with small game, fish and corn. In the deep South, warm temperatures and rich soil provided abundant year-round crops, fish and game so storage was not a problem. Availability of fuel for cooking also influenced how food was prepared and cooked.

- Food quality – When the Pilgrims first settled in America, they ate the local foods that were the staple diet of the Native Americans. They learned new methods of growing and preparing these foods. Where foods were high quality and rich in flavor, the cooking methods were simple to bring out natural flavor (not mask it). When the food was not as high quality, recipes that were highly seasoned became popular. Each geographical region eventually developed foods that became popular in that area.

Culture

- Many of the foods eaten in the U.S. have Native American origins. These foods were combined with those of the people settling here from other countries. Groups immigrating to the U.S. brought their own cooking and eating *customs* with them. Immigrants also introduced new *types of foods* and *utensils* which played a role in food preparation.

- People of the same nationality tended to settle in areas that were similar in geography and climate to their homeland. These immigrants sought to retain their ethnic identities by continuing their native food customs. Lifestyles, religions and traditions helped to influence each area differently. As a result, food preparation may vary from region to region.

OBJECTIVE 12 Answers may vary but should be taken from class discussion.

OBJECTIVE 13 **Evaluated on Assignment Sheet 6.**

OBJECTIVE 14 Answer may include an explanation of any four (4) of the following:

- Agricultural technology – Improved irrigation techniques have made previously unused land available for farming. New types of farming, such as aquaculture and hydroponics, and improved fertilizers and tools help increase the food yield. The science of biotechnology has created new strains of plants that are resistant to drought and diseases. Technologies to increase product yields in diverse environments where the poor and undernourished live are still being researched.

- Diseases – Significant quantities of the food supply are lost because of pests (such as rodents and insects), plant diseases and other biological adversities. Diseased animals, failed crops, and spoiled food can also have disastrous effects on a nation's supply of food.

- Energy losses – Every step in food production and processing requires energy in one form or another. Energy costs can have significant effects on a nation's ability to produce, process, distribute, and trade food. Higher energy costs usually result in higher food costs.

- Food technology – With an increased knowledge of nutrition and food processing, scientists have created new foods. In addition, the treatment of food before consumption helps to prevent perishables from spoiling and deteriorating. Advances in processing such as refrigeration, freezing, dehydration, drying, and food additives have also helped increase the world food supply.

- Government policies – Food policies established by governments affect the supply and price of food. This in turn affects what foods are available in a country or area. Food is one of the largest industries in most countries and has become a worldwide object of dispute. Federal food and agricultural policies affect almost every aspect of food production, consumption, and exchange. The government can regulate food prices through subsidizing farmers and supporting certain agricultural products. The ability of a nation to trade food depends on its foreign exchange situation, which may be limited by debts, terms of trade, import tariffs, and restricted export potential.

- Natural and man-made disasters – Natural and man-made disasters have a great impact on the world's food supply. Prolonged droughts, floods, locust invasion, and other natural disasters can cause crop failures leading to less food and much economic hardship. Man-made disasters such as civil unrest and war often interrupt or sever needed food supplies for an entire population, causing hunger and even starvation. Disasters may also lead to higher prices, since the supply of a food item may no longer satisfy the demand for it.

- Seasons and weather – Weather and the four seasons have long been a factor in food production and distribution. They affect the amount of food available and the price. If weather conditions are favorable, there may be an abundant supply and food prices will fall. If the conditions are poor, the yield is smaller and prices may rise. Historically, a short growing season meant less food to harvest. Although seasonal influences do not affect food supply nearly as much as it used to, it is still a significant factor. Foods are more plentiful and are usually less expensive when they are "in season."

- Transportation – Major global food supply problems are being solved with efficient and effective food storage and transportation methods. Time and temperature play a large role in food spoilage. With advances in transportation, refrigerated cars, and improved storage techniques these factors are becoming less of a problem in many areas. However, an interruption in the transportation of foods - such as during a strike - may cause a temporary shortage in the availability of a food item (and higher prices).

- Travel – People who travel can influence the foods that are available to them. Consumers may demand foods that are enjoyed while visiting other regions or countries. Immigrants may also introduce new foods.

OBJECTIVE 15 **Evaluated on Assignment Sheet 7.**

CIMC
TEST CODE SHEET

VOCATIONAL PROGRAM (BOOK TITLE) ***Food Science and Personal Nutrition***

UNIT NUMBER AND TITLE — **1 — Valuing Food in Your World**

TOTAL NUMBER OF TEST QUESTIONS 32

TOTAL NUMBER OF BASIC SKILL QUESTIONS 11

OBJECTIVE NUMBER	TEST QUESTION NUMBER(S)	BASIC SKILL CODE(S)
1	1	X
2	1	X
3	Evaluated on AS 1	
4	Evaluated on AS 2	
5	1-8	X
6	1-5	W
7	Evaluated on AS 3	
8	Evaluated on AS 4	
9	1-4	X
10	Evaluated on AS 5	
11	1-2	W
12	1-7	X
13	Evaluated on AS 6	
14	1-4	W
15	Evaluated on AS 7	

INSTRUCTOR'S GUIDE

EXAMINING FOOD, NUTRIENTS, AND THE BODY

2

Required Activities and Resources (R)

These are fully integrated components of this CIMC curriculum. They are usually packaged in or with the curriculum and are essential in meeting the learning objectives. To individualize this unit, use the LAP Sheet supplied in your resources.

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FOCUS ASSIGNMENTS

Prereading

R Have the students read Handout 1, "Alcohol and Nutrition."

Writing

R Have the students write a short (one page) discussion of the nutritional problems related to alcohol. Have the students discuss their answers in class.

GENERAL INSTRUCTIONS

Assignment Sheets

R Review the directions and any specific guidelines.

R Make certain that any needed materials from the Instructor's Resource Package are available.

R Have the students complete the Assignment Sheet. Evaluate each student's performance and provide reteaching and retesting as necessary. Have the students repeat the Assignment Sheet until they achieve mastery.

R Complete each student's Competency Profile.

O Have the students volunteer to read aloud the directions and any special guidelines.

O Return the completed Assignment Sheets to the students so that they may use them for later reference if needed.

LAP Sheets

The LAP Sheets are an optional component that can be used to individualize instruction. The following instructions should be followed only if you are using the LAP Sheets.

R Explain the specific procedures to be followed to the students before they begin using the LAP Sheet. Be sure that each student understands the procedures for using the LAP Sheet.

R If you want the student to complete any of the assignments on the LAP Sheet that are labeled optional, assign these to the student. Be sure to provide any needed resources.

OBJECTIVE 1

Explain why food is needed by the body.

R Discuss reasons the body needs food.

O Discuss various activities that require energy. Include energy requirements during rest and sleep in the discussion.

O Have the students display pictures which show the body using energy.

O Make a classroom display showing the uses of energy.

OBJECTIVE 2

Describe how the body turns food into energy.

R Use Transparency Master 1 to show the digestive tract.

R Use Transparency Master 2 to show the villi in the small intestine. Explain the purpose of villi.

O Have the students pretend they are a tour guide for the human body. The students should conduct a sight seeing trip through the digestive tract and select major stops to describe. the interesting activities going on there. Students should present the program to the class.

O Show the students that the digestive system begins in the mouth. Have the students bite into a cracker and hold it in the mouth. Explain that the enzyme ptyalin changes starch into sugar.

OBJECTIVE 3

Explain the impact of factors that determine total calorie intake requirements.

R Have the students read Handout 2, "Obesity." Discuss caloric balance.

R Use Transparency Master 3 to show types of exercise.

R Use Transparency Master 4 to show the different energy requirements during the life cycle.

R Discuss the reasons why total calorie intake is important.

O Have the students identify ways to determine the calorie content of food: calorie books, food labels, cook books, nutrition books.

O Have the students write a paragraph on why they should be concerned about calorie intake on a regular basis.

O Supplement this objective with the "Diet Analysis" computer program from Parsons Technology, or similar software-based programs.

OBJECTIVE 4

Explain the impact of factors that influence an individual's basal metabolic rate.

- R Use Transparency Master 5 to show the different body types.
- R Discuss body types: ectomorph, endomorph, mesomorph.
- R Discuss metabolism include information about the body using calories during rest periods.
- R Have the students calculate their BMR using Handout 3, "Computation of Your Basal Metabolic Rate." Compare the students' answers.
- R Use Transparency Master 6 to illustrate how to compute BMR.
- O Use Transparency Master 7 to show the effects of physical activity on BMR.
- O Discuss how strict diets can slow the metabolism and "fool" the body into changing the metabolism rate resulting in weight gain rather than loss.

OBJECTIVE 5

Calculate daily kilocalorie intake. (Assignment Sheet 1)

- R See the general instructions for all Assignment Sheets.
- R Remind students of the many ways to determine the calorie content of food. Identify calorie books, food labels, cookbooks, nutrition books, etc.
- R Discuss the relationship between health and diet. Explain how too many calories can affect your physical health.
- R Discuss ways the students could improve their diet and calorie counts. Remind the students that it is important to have a well-balanced diet over time (such as over a week).
- O Discuss how establishing healthy eating habits now can help in the future.
- O Take a class trip to a local fast food restaurant. Identify the calorie content of the most popular items. Suggest ways to make healthy choices at this type of restaurant.

OBJECTIVE 6

Match the nutrients in food to their descriptions.

- O List the six nutrient groups on a large piece of paper. Ask the students to tell you as much about each group as they can and record the answers. Save the paper and refer to it at the end of the unit.
- O Give examples of foods that contain these nutrients.

OBJECTIVE 7

Distinguish among the functions of nutrients.

- R Discuss the functions of the basic nutrients. Include in the discussion separate vitamins and minerals.
- R Discuss nutrient team work.
- O Have the students select a nutrient and research what it does for the body, and determine what other nutrients are needed for that process. Have the students report their findings to the class.
- O Display pictures illustrating the various nutrients.
- O Discuss the body's need for water. Have the students list 10 ways to include water in their diet (not including drinking water).
- O Have the students work in groups to develop a commercial or advertisement for a specific nutrient to present to the class.

OBJECTIVE 8

Explain nutrient density.

- R Use Transparency Master 8 to show foods that have high and low nutrient density.
- O Display a poster of foods that are high in calories but empty of most nutrients.
- O Ask the students to compare an empty calorie snack (low nutrient density) to a nutritious snack (high nutrient density). Give examples of each.
- O Tour a local supermarket with the class. Compare breakfast cereals. Determine which ones have high nutrient value, which do not. Determine which contain higher amounts of sugar as opposed to the other ingredients. Have the students report their findings to the class.

OBJECTIVE 9

Distinguish between complete and incomplete proteins.

R Discuss complementary proteins.

R Use Transparency Master 9 to show the types of vegetarians.

R Discuss the types of vegetarians. Emphasize that vegetarians can have a healthy diet.

O Discuss the publication *Eating Well-The Vegetarian Way.*

O Have the students plan a vegetarian meal and prepare it for the class.

O Have the students identify commonly used non-animal foods that could be combined to provide all of the essential amino acids.

OBJECTIVE 10

Identify food sources of complete and incomplete proteins.

R Use Transparency Master 10 to show food sources of proteins.

R Use Transparency Master 11 to show complete proteins made from plants.

R Discuss protein deficiency.

O Have the students write a short report on protein deficiency.

O Display pictures or models of food that contain complete and incomplete proteins.

OBJECTIVE 11

List principal food sources of carbohydrates.

R Discuss the differences between simple and complex carbohydrates. Discuss the pro and cons of excesses in both groups in the diet.

R Discuss the need for fiber in the diet. Relate the information to problems that result from a low intake of fiber.

R Use Transparency Master 12 to show food sources of carbohydrates.

O Display posters of food that are good sources of carbohydrates; include sugar, starch, and fiber.

O Have the students find and report on current articles on the importance of fiber and determine if the articles all agree.

O Have the students select foods to produce a menu that is high in fiber. Compare the information to the typical diet of the student.

OBJECTIVE 12

Test for carbohydrates in foods. (Assignment Sheet 2)

R See the general instructions for all Assignment Sheets.

R Review the steps in the scientific method (Unit 1, Transparency Master 1).

R Ask a science instructor to provide test tubes, if possible.

O Have the students investigate the effects of sugar on teeth and summarize their findings in a one-page report.

OBJECTIVE 13

Distinguish between saturated and unsaturated fats.

R Explain the terms monounsaturated and polyunsaturated

R Discuss the difference between cholesterol and fat.

O Have the students research the difference between cholesterol and fat, find examples of foods that contain them and report their findings to the class.

O Have the students visit a local supermarket to identify a variety of fats that are monounsaturated and polyunsaturated.

OBJECTIVE 14

Identify food sources of saturated and unsaturated fats.

R Use Transparency Master 13 to show food sources of unsaturated fats.

R Use Transparency Master 14 to show food sources of saturated fats.

O Display pictures of foods that are high in fat.

O Invite a local medical doctor or dietician to speak on health issues related to consuming fats and the benefits of a low-fat diet.

O Discuss ways the students could cut down on fat consumption and how to be aware of the hidden fat they are consuming.

OBJECTIVE 15

Test for the presence of fats in foods. (Assignment Sheet 3)

R See the general instructions for all Assignment Sheets.

O Discuss foods that have hidden fat and compare to foods that are obviously fatty.

O Have the students compare the grams of fat in a regular bag of cookies and one that is low-fat. Do the same for tortilla chips.

OBJECTIVE 16

Distinguish between fat-soluble and water-soluble vitamins.

O Discuss how water-soluble vitamins can be lost during cooking.

O Provide the students with health sections of newspapers or health related magazines. Have each student find an article that deals with vitamins. Have each student summarize the article and report it to the class.

O Bring in articles that deal with overdoses of vitamins. Explain the effects for megadoses to the class.

OBJECTIVE 17

Identify food sources of fat-soluble and water-soluble vitamins.

O Have the students design posters that show food sources of fat-soluble and water-soluble vitamins.

O Select certain foods and discuss all of the vitamins found in these foods.

OBJECTIVE 18

Analyze the solubility of vitamins. (Assignment Sheet 4)

R See the general instructions for all Assignment Sheets.

R Make sure that the vitamin supplements used are not the time-release type. They may affect the results of this activity.

O Have the students visit a drugstore or a grocery store in which vitamin supplements are sold. Ask about the variety of supplements that are available and report your findings to the class.

OBJECTIVE 19

State food sources of minerals.

O Discuss the importance of calcium in the diet during the formative years. Ask the students what might occur if calcium is lacking.

O Have the students research and write a one-page report on osteoporosis.

O Discuss the relationship of minerals that work together in the body, such as calcium and phosphorous, and sodium, chlorine and potassium.

O Have the students look at nutrition labels from a variety of processed foods (sandwich meats, condiments, frozen entrees, snacks). Have them each give suggestions to the class on what could be done to reduce sodium in the diet.

O Put each term on a 3x5 card. Then, hand out the cards and ask the students for a possible food source for each mineral.

OBJECTIVE 20

Define the impact of nutrient levels in the diet.

O Have the students select one nutrient to research and report how the nutrient was discovered. Have them write a short report on the discovery.

O Have the students research articles that report any overdoses or deficiency diseases related to minerals. Have them give a short oral report on the article.

OBJECTIVE 21

Evaluate the nutritional qualities of a recipe from another country or culture. (Assignment Sheet 5)

R See the general instructions for all Assignment Sheets.

O Discuss how other countries make nutritional meals out of what they have available to them.

EVALUATION

Pretest

- Use the unit Written Test for *both* the pretest and posttest. Give the students the pretest before they begin the unit.

- You may wish to use the CIMC publication *Measuring Learning and Competency Gains: The Pretest/Posttest Approach* for instructions and suggestions on giving pretests and using the results. Information for ordering this material is included in the optional resources section.

- Use pretest results to guide individual students in progressing through the unit, doing enrichment work, or moving to the next unit.

Focus Assignment

- Use an informal evaluation of the focus assignments as a diagnostic tool for determining if any students need extra help in reading comprehension or writing skills. Refer these students to their English instructor, Learning Resource Center, or Educational Enhancement Center.

Assignment Sheet

- Evaluate students on Assignment Sheet activities. Students must repeat an Assignment Sheet until they have mastered the activity.

- Complete each student's Competency Profile.

Skill Test

- Explain to the students that they will be asked to demonstrate the procedures on the Job Sheets as a skills test.

- Describe the rating scale used on the skills test.

- Reteach and retest as necessary.

- Complete each student's Competency Profile.

Posttest

- After they have completed the unit, give students the Written Test again.

- Explain to the students that they will be asked to demonstrate on the Written Test actions listed in the specific objectives.

- You may wish to use the CIMC publication *Measuring Learning and Competency Gains: The Pretest/Posttest Approach* for instructions and suggestions on giving posttests and using the results. Information for ordering this material is included in the optional resources section.
- Reteach and retest as necessary to meet individual student needs and state standards for student learning and competency gains.
- Complete the appropriate sections of the Competency Profiles.
- Review individual and group performance to evaluate teaching effectiveness. Adjust scope, sequence, or instructional methods for additional lessons as required.

REQUIRED RESOURCES

The items marked with an asterisk are included in the Instructor's Resource Package.

Publications

- "Alcohol and Nutrition." Handout 1.*
- "Obesity." Handout 2.*
- "Computation of Your Basal Metabolic Rate." Handout 3.*

OPTIONAL RESOURCES

Publications

- *Measuring Learning and Competency Gains: The Pretest/Posttest Approach.* Stillwater, OK: CIMC, Oklahoma Department of Vocational and Technical Education, 1992. For ordering information call 800-522-5810.
- *Eating Well-The Vegetarian Way.* Chicago: The American Dietetic Association, 1992. For ordering information call 800-366-1655.

Software

- "Diet Analysis" program. Parsons Technology, 1 Parsons Drive, P.O. Box 100, Hiawatha, IA 52233-9904. Or call 1-800-223-6925.

UNIT REFERENCES

Publications

- Duyff, Roberta et al. *Modern Meals*. Mission Hills, California: McGraw Hill, 1990.
- Largen, Velda L. and Deborah L. Bence. *Guide to Good Food*. South Holland, IL: The Goodheart-Wilcox Company, Inc., 1992.
- Kowtaluk, Helen and Kopan, Alice O. *Food for Today*. Mission Hills, CA: Glencoe, 1990.
- Medved, Eva. *The World of Food*. Englewood Cliffs, New Jersey: Prentice Hall, 1990.
- Vernon, Alice. *Foods*. St. Paul, Minnesota: E.M.C. Corporation, 1988.
- Whitney, Elenor D.; Hamilton, Eva May; Rolfes, Sharon. *Understanding Nutrition* (5th ed). St. Paul, Minnesota: West Publishing Company, 1990.
- *The Food Guide Pyramid*. Hyattsville, MD: U.S.Department of Agriculture, 1992.

ASSIGNMENT SHEETS

OBJECTIVE 5

Assignment Sheet 1

Answers will vary. Answer will be determined by totaling the calorie consumption listed for each day from the student's food diary.

OBJECTIVE 12

Assignment Sheet 2

Part 1

- A blue-black (purple) color will indicate the presence of starch.

Part 2

- A red-orange color will indicate the presence of sugar.

OBJECTIVE 15

Assignment Sheet 3

- A grease spot will indicate the presence of fat in the food.

OBJECTIVE 18

Assignment Sheet 4

The results should be evaluated by the instructor, depending upon which vitamins were used.

OBJECTIVE 21

Assignment Sheet 5

Answers will vary. The instructor should evaluate the Assignment Sheet on the basis of the completeness of the analysis for each recipe.

WRITTEN TEST

OBJECTIVE 1

Answers should include the following:

- Satisfy hunger and give pleasure
- Provide the body with nutrients
- Provide and replenish energy
- Build and repair cells
- Regulate body processes

OBJECTIVE 2

Answers should include the following:

A. Mouth – Digestion begins as soon as food enters your mouth. Saliva helps soften food and contains the enzyme ptyalin to help change starchy food into sugar. The teeth break up food into small pieces which mix with the saliva.

B. Esophagus – When you swallow chewed food, it is moved by peristaltic wave action to the stomach.

C. Stomach – The stomach churns, breaks up the food and mixes it with gastric juices to form chyme. The gastric juices contain hydrochloric acid and the enzyme pepsin which begin to break down protein.

D. Small intestine – Enzymes, intestinal fluids, juices from the pancreas and bile from the liver continue to break down the chyme into nutrients. Once broken down, the nutrients are absorbed by the villi and digestion is complete. The nutrients enter the blood stream and are either carried to where they are immediately needed or carried to the liver. Waste is carried to the large intestine.

E. Liver – Blood vessels carry the nutrients to the liver from the villi in the small intestine. The liver converts the nutrients into different forms needed by the body and sends them into the blood stream. The nutrients that are not immediately needed are stored or used to form other body chemicals. Nutrients are excreted if the body cannot use them.

F. Large intestine – About ten percent of the food you eat ends up as waste and continues to be processed by the large intestine. Water is absorbed by the large intestine and then moved to the kidneys to be eliminated as urine. Solid waste from digestion is called feces and is eliminated as a bowel movement.

OBJECTIVE 3

1. Gradually slows
2. The more a person weighs, the more energy/calories are required
3. Men
4. Women
5. Muscle tissue
6. Strenuous activities
7. More
8. More energy is needed

OBJECTIVE 4

1. Large or tall people usually have a higher BMR
2. Slows
3. Men
4. Higher
5. Adrenalin may increase the BMR

OBJECTIVE 5

Evaluated on Assignment Sheet 1.

OBJECTIVE 6

1. D
2. G
3. H
4. C
5. A
6. F
7. E
8. I

OBJECTIVE 7

Answers should include the following:

1. C
2. B
3. B
4. B
5. C
6. A
7. E
8. G
9. A
10. G
11. E
12. E
13. F
14. F

OBJECTIVE 8

Answers should include the following:

- Foods that are rich in nutrients and have a low calorie count are nutrient dense.
- Nutrient density is the amount of nutrients provided per calorie.
- Nutrient dense foods provide more nutrients than calories.
- Low nutrient density foods have empty calories: they are high in calories without providing worthwhile nutrients.

OBJECTIVE 9

1, 3, 5, 6

OBJECTIVE 10

1. I
2. C
3. C
4. I
5. C
6. I
7. C
8. I
9. I
10. C

OBJECTIVE 11

Answers may vary but may include the following:

1. sugar

- fruit
- fruit juice
- table sugar
- honey, molasses
- soft drinks and other sweets
- milk (lactose or milk sugar)

2. starch

- grains: bread, cereal, pasta
- potatoes
- rice
- legumes (dried peas and beans)

3. fiber

- bran
- whole grain foods
- vegetables - raw and unpeeled
- fruit - raw and unpeeled
- nuts
- seeds
- popcorn
- legumes (dried peas and beans)

OBJECTIVE 12 **Evaluated on Assignment Sheet 2.**

OBJECTIVE 13

1. S
2. U
3. S
4. U
5. U
6. S
7. S
8. U
9. S
10. U
11. S
12. U

OBJECTIVE 14

1. U
2. S
3. S
4. S
5. U
6. U
7. S
8. S
9. U
10. S
11. SU
12. S
13. S
14. SU
15. U
16. S
17. S
18. S

OBJECTIVE 15 **Evaluated on Assignment Sheet 3.**

OBJECTIVE 16

1. W
2. F
3. W
4. F
5. W
6. W
7. W
8. W
9. F
10. W
11. W
12. F
13. W
14. W
15. F
16. WF
17. F
18. F
19. W
20. F

OBJECTIVE 17

1. D
2. A
3. A
4. D
5. A
6. C

OBJECTIVE 18

Evaluated on Assignment Sheet 4.

OBJECTIVE 19

Answers may vary but should include the following:

- calcium – milk and milk products, egg yolks, green leafy vegetables, fish eaten with bones (such as canned fish)
- phosphorus – milk and milk products, fish, poultry, legumes, whole grain breads and cereals
- magnesium – organ meats, whole grain cereals and breads, nuts, legumes, green leafy vegetables, milk, and egg yolks
- sodium – found in most foods, table salt, baking powder, baking soda, cheese, processed foods
- chlorine – found in most foods, table salt
- potassium – fish, meat, bananas, citrus fruit and milk
- iodine – saltwater seafood, iodized salt, most foods of animal origin
- zinc – seafood, meat, eggs, poultry, milk, and whole grains
- iron – liver, kidney, heart, lean meats, egg yolks, nuts, dried fruits, whole grain and enriched breads and cereals, legumes

OBJECTIVE 20

1. E, Carbohydrate
2. D, Carbohydrate
3. E, Fat
4. D, Protein
5. D, Vitamin D
6. D, Vitamin C
7. E, Vitamin A
8. E, Vitamin D
9. D, Vitamin B1
10. E, Phosphorus
11. E, Sodium, chlorine, potassium
12. D, Calcium
13. D, Magnesium
14. D, Iodine
15. D, Water

OBJECTIVE 21

Evaluated on Assignment Sheet 5.

CIMC
TEST CODE SHEET

VOCATIONAL PROGRAM (BOOK TITLE) *Food Science and Personal Nutrition*

UNIT NUMBER AND TITLE — 2 — Examining Food, Nutrients, and the Body

TOTAL NUMBER OF TEST QUESTIONS 152

TOTAL NUMBER OF BASIC SKILL QUESTIONS 39

OBJECTIVE NUMBER	TEST QUESTION NUMBER(S)	BASIC SKILL CODE(S)
1	1-5	W,S
2	A-F	W,S
3	1-8	S
4	1-5	S
5	Evaluated on AS 1	
6	1-8	X
7	1-14	X
8	1-6	X
9	1-7	X
10	1-10	X
11	1-3	X
12	Evaluated on AS 2	
13	1-12	X
14	1-18	X
15	Evaluated on AS 3	
16	1-20	X
17	1-6	X
18	Evaluated on AS 4	

OBJECTIVE NUMBER	TEST QUESTION NUMBER(S)	BASIC SKILL CODE(S)
19	**1-9**	**X**
20	**1-15**	**S**
21	**Evaluated on AS 5**	

INSTRUCTOR'S GUIDE

HANDLING AND STORING FOOD

3

Required Activities and Resources (R)

These are fully integrated components of this CIMC curriculum. They are usually packaged in or with the curriculum and are essential in meeting the learning objectives. To individualize this unit, use the LAP Sheet supplied in your resources.

- Reproducible Handouts and Transparency Masters are included in the Instructor's Resource Package. Handouts should be copied for all students. Transparency Masters should be used to make overhead transparencies for use during instruction. A small copy of each Transparency Master appears in the student's Information Sheets.

- Non-reproducible resources are included in the student's curriculum.

Optional Activities and Resources (O)

These are suggested high-interest activities to help deliver learning objectives to students or to let students achieve objectives in an applied context. Select as many as you wish to use. Some activities use extra resources for further information about unit content. You can make them available in the classroom for in-depth study or optional activities, but their use is not required for meeting CIMC unit objectives.

FOCUS ASSIGNMENTS

Prereading

R Have the students read the Handout "Effect of Light on Milk."

Writing

R Have the students write a paragraph about their ideas on the effects of packaging on milk and other products.

GENERAL INSTRUCTIONS

Assignment Sheets

R Review the directions and any specific guidelines.

R Make certain that any needed materials from the Instructor's Resource Package are available.

R Have the students complete the Assignment Sheet. Evaluate each student's performance and provide reteaching and retesting as necessary. Have the students repeat the Assignment Sheet until they achieve mastery.

R Complete each student's Competency Profile.

O Have the students volunteer to read aloud the directions and any special guidelines.

O Return the completed Assignment Sheets to the students so that they may use them for later reference if needed.

LAP Sheets

The LAP Sheets are an optional component that can be used to individualize instruction. The following instructions should be followed only if you are using the LAP Sheets.

R Explain the specific procedures to be followed to the students before they begin using the LAP Sheet. Be sure that each student understands the procedures for using the LAP Sheet.

R If you want the student to complete any of the assignments on the LAP Sheet that are labeled optional, assign these to the student. Be sure to provide any needed resources.

OBJECTIVE 1

Distinguish among the causes of food spoilage.

R Show Transparency Master 1.

R Show Transparency Master 2.

R Lead a class discussion on how food spoils. Explain that some actions of microorganisms are helpful. Certain molds are used to flavor cheeses and to make drugs such as penicillin and streptomycin. Yeast action turns grapes into wine, releases carbon dioxide to make bread dough rise, and bacteria turns cabbage into sauerkraut.

O Have the students make posters about the microorganisms and enzymes showing each as beneficial and/or hazardous.

OBJECTIVE 2

State factors affecting the shelf life of food products.

O Briefly describe the different types of additives and why they are used.

O Discuss different environments that might affect the shelf life of some food products (tropical climates, arid regions, etc.).

O Visit a food processing or packaging operation, or a dairy farm, and highlight the precautions taken.

OBJECTIVE 3

Distinguish among the types of open dating.

O Bring to class several food products with different types of open dating.

O Have the students prepare a poster using packaging from dated food products. The poster should use at least one of each type of open dating.

OBJECTIVE 4

Match types of foods to their correct storage method.

R Lead a class discussion on different methods of storing foods. Explain and demonstrate the temperature ranges of specific areas in the refrigerator.

O Have the students write a short paper on how food is stored in their home. Have them include ways on how to improve their current storage practices.

O Have the students research and give a short oral report on how people stored food in the 1700's, 1800's and early 1900's.

O Have the class imagine that they are home for lunch. The refrigerator has stopped working, but it had been working that morning at breakfast time. Have the students discuss what they think should be done about preparing lunch now.

OBJECTIVE 5

State guidelines for storing foods.

O Demonstrate the proper techniques for refrigerator and freezer storage.

O Emphasize the importance of proper temperatures in the storage and preparation of foods.

O Cut out pictures of high-risk foods such as poultry, fish, mayonnaise, and eggs. Explain that salads or sandwiches made with mayonnaise should be chilled before taking on a picnic and should be served promptly.

OBJECTIVE 6

Interpret a food spoilage experiment. (Assignment Sheet 1)

R See the general instructions for all Assignment Sheets.

R Have students begin this assignment on a Friday and start charting on Monday. This will provide some "lead time" for visible changes to occur.

R Discuss the best conditions for microorganisms to grow. Have the class study bread mold under a microscope. Ask: "What are the characteristics of this type of mold?" Relate the mold to food spoilage.

O Team-teach this objective with a science instructor at your school.

OBJECTIVE 7

State factors contributing to food-borne illnesses.

R Show Transparency Master 3.

O Bring to class (or have the students locate) newspaper or magazine articles regarding food-related illnesses. Stress that food poisoning does happen.

O Discuss what to watch out for when buying canned goods (dents, rust, bulging or puffiness).

OBJECTIVE 8

Match common food-borne illnesses to their descriptions.

O Ask the students to recall any instances of getting sick from contaminated food. Ask for volunteers to explain their experience and discuss how their illness might have been prevented.

O Ask for volunteers to research the outbreak of E. coli bacteria in Seattle in January 1993. Ask them to report their findings to the class. Remind students that E. coli are in our intestines, where they help digest our food and provide vitamin K. The outbreak involved a strain of the bacteria which lives in the intestines of cattle.

OBJECTIVE 9

Select from a list guidelines for maintaining kitchen safety, sanitation, and efficiency.

R Show Transparency Masters 4 and 5.

R Lead a class discussion on kitchen safety, sanitation, and efficiency.

O Have the students select kitchen plans from magazines. Divide the class into teams. Give each team a plan and ask them to analyze the relationship of the kitchen plan to steps that are necessary in the preparation of food. Discuss the advantages and disadvantages of the different plans.

O Have each student analyze the food lab at your school for safety hazards. List the hazards and compare.

O Have the students construct a chart of how foods become contaminated and ways to prevent contamination.

O Have the students make safety and sanitation posters for class display.

O Plan a visit to a housing complex designed for the disabled to show the current designs in kitchen design and equipment.

O Have the students write a short paper describing a layout or storage problem found in their kitchen. Have them draw a floor plan and come up with possible solutions to the problem.

OBJECTIVE 10

Select from a list proper food handling and personal sanitation practices.

O Invite food service personnel to speak to the class on food service rules, regulations, and handling of food.

O Arrange a field trip to a commercial food preparation establishment, such as a cafeteria or restaurant, to observe sanitary food handling practices.

OBJECTIVE 11

Demonstrate the importance of proper food handling using gelatin cultures. (Assignment Sheet 2)

R See the general instructions for all Assignment Sheets.

R Divide the class into groups to complete the Assignment Sheet.

O Team-teach this objective with a science instructor at your school.

O Have the students clean up after a laboratory. Discuss the techniques for cleaning different surfaces such as wood, plastic and porcelain.

OBJECTIVE 12

Research a food-borne illness. (Assignment Sheet 3)

- R See the general instructions for all Assignment Sheets.
- R Before students complete the Assignment Sheet, give them guidelines for delivering an oral report.

OBJECTIVE 13

List factors influencing food packaging requirements.

- R Show Transparency Master 6.
- O Invite a guest speaker to explain the kinds of food packaging. Have the students create a chart with the following headings: paper, perforated-film bags, shrink film, opaque film, vacuum and nitrogen back-filled, and moisture-proof packaging. Have them look at the kinds of food packaging they have at home and write the name of the food that uses a particular packaging material under each heading.
- O Invite a grocery store manager to visit the class and explain how packaging affects the amount and degree of damage to food products the store receives.

OBJECTIVE 14

Investigate trends and technologies in food packaging and storage. (Assignment Sheet 4)

- R See the general instructions for all Assignment Sheets.
- R Before students complete the Assignment Sheet, give them guidelines for delivering an oral report.
- O Have the students pick two products and analyze their packaging.

EVALUATION

Pretest

- Use the unit Written Test for *both* the pretest and posttest. Give the students the pretest before they begin the unit.
- You may wish to use the CIMC publication *Measuring Learning and Competency Gains: The Pretest/Posttest Approach* for instructions and suggestions on giving pretests and using the results. Information for ordering this material is included in the optional resources section.
- Use pretest results to guide individual students in progressing through the unit, doing enrichment work, or moving to the next unit.

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- Use an informal evaluation of the focus assignments as a diagnostic tool for determining if any students need extra help in reading comprehension or writing skills. Refer these students to their English instructor, Learning Resource Center, or Educational Enhancement Center.

Assignment Sheet

- Evaluate students on Assignment Sheet activities. Students must repeat an Assignment Sheet until they have mastered the activity.

- Complete each student's Competency Profile.

Skill Test

- Explain to the students that they will be asked to demonstrate the procedures on the Job Sheets as a skills test.

- Describe the rating scale used on the skills test.

- Reteach and retest as necessary.

- Complete each student's Competency Profile.

Posttest

- After they have completed the unit, give students the Written Test again.

- Explain to the students that they will be asked to demonstrate on the Written Test actions listed in the specific objectives.

- You may wish to use the CIMC publication *Measuring Learning and Competency Gains: The Pretest/Posttest Approach* for instructions and suggestions on giving posttests and using the results. Information for ordering this material is included in the optional resources section.

- Reteach and retest as necessary to meet individual student needs and state standards for student learning and competency gains.

- Complete the appropriate sections of the Competency Profiles.

- Review individual and group performance to evaluate teaching effectiveness. Adjust scope, sequence, or instructional methods for additional lessons as required.

REQUIRED RESOURCES

The items marked with an asterisk are included in the Instructor's Resource Package.

Publications

- "Effect of light on milk." Handout. *

OPTIONAL RESOURCES

Publications

- *Measuring Learning and Competency Gains: The Pretest/Posttest Approach.* Stillwater, OK: CIMC, Oklahoma Department of Vocational and Technical Education, 1992. For ordering information call 800-522-5810.

UNIT REFERENCES

Publications

- Duyff, Roberta et al. *Modern Meals*. Mission Hills, California: McGraw Hill, 1990.
- *Foundations for Living, Volume 1.* Stillwater, OK: CIMC, Oklahoma Department of Vocational and Technical Education, 1989.
- Gibson, Leroy. *Food Production, Management and Services: Production, 2nd ed.* Stillwater, Oklahoma: The Mid-America Vocational Curriculum Consortium, Inc., 1992.
- Largen, Velda L. and Deborah L. Bence. *Guide to Good Food.* South Holland, IL: The Goodheart-Wilcox Company, Inc., 1992.
- Journal of Food Science. Vitamin D stability in milk. May/June 1993.
- Kepics, Cathy. *Transparent packaging - is it always appropriate?* DBC Dimensions, Fall 1993.
- Kowtaluk, Helen and Alice O. Kopan. *Food for Today*. Mission Hills, CA: Glencoe, 1990.

- Medved, Eva. *The World of Food.* Englewood Cliffs, New Jersey: Prentice Hall, 1990. Nutrition. Stillwater, OK: CIMC, Oklahoma Department of Vocational and Technical Education, 1995.

- Palan, Earl. *Food Production, Management and Services: Introduction, 2nd ed.* Stillwater, Oklahoma: The Mid-America Vocational Curriculum Consortium, Inc., 1992.

- Vernon, Alice. *Foods*. St. Paul, Minnesota: E.M.C. Corporation, 1988.

- Whitney, Elenor D.; Hamilton, Eva May; and Sharon Rolfes. *Understanding Nutrition (5th ed).* St. Paul, Minnesota: West Publishing Company, 1990.

ANSWERS

HANDLING AND STORING FOOD

3

ASSIGNMENT SHEETS

OBJECTIVE 6

Assignment Sheet 1

Instructor should evaluate the Assignment Sheet on the basis of completion of the chart and the appropriate answers to the questions. Answers will vary depending upon the storage conditions and the type of bread and other foods used.

OBJECTIVE 11

Assignment Sheet 2

Instructor should evaluate the Assignment Sheet on the basis of completion of the chart and the appropriate answers to the questions. Answers will vary depending upon the conditions and the type of bacteria to which the culture was exposed.

OBJECTIVE 12

Assignment Sheet 3

Written reports should include the following points:

- The cause of the illness, food sources, symptoms, and ways to prevent the illness.
- A list of resources used.
- Each student's oral report should be evaluated according to the guidelines given by the instructor.

OBJECTIVE 14

Assignment Sheet 4

1. Student should have identified a food product plus 3 reasons for its packaging.
2. Student should have described a new food product and its package.
3. Student should have successfully delivered a brief oral report.

WRITTEN TEST

OBJECTIVE 1

1. A
2. C
3. B
4. D
5. B
6. A
7. C
8. B
9. D
10. B or C
11. C

OBJECTIVE 2

1. processing and preserving
2. packaging
3. additives
4. damage
5. time
6. heat
7. storage methods

OBJECTIVE 3

1. D
2. A
3. B
4. C
5. A
6. D
7. B
8. A
9. B

OBJECTIVE 4

1. B
2. A
3. C
4. B
5. A
6. C
6. C
7. B
8. C
9. A
10. B
11. B

OBJECTIVE 5

1. Maintain a temperature range of 55°F to 70°F.
2. Never store food near chemicals.
3. Do not store food under sinks.
4. Maintain a temperature range of 36°F to 40°F.
5. Store fresh uncooked meats loosely.
6. Store produce in tightly sealed plastic bags or a crisper.
7. Use fish, poultry, and hamburger within 1 to 2 days.
8. Use meat, produce, and leftovers within 3 to 5 days.
9. Blanch fresh vegetables to stop enzyme action.
10. Leave 1 inch of head space at the top of containers.
11. Squeeze all air out of packages when wrapping.
12. Keep an inventory of freezer contents.

OBJECTIVE 6

Evaluated on Assignment Sheet 1.

OBJECTIVE 7

1. Improper food preparation
2. Improper food storage
3. Rodents and insects
4. Poor personal hygiene
5. Unsanitary kitchen
6. Improper food preparation
7. Improper food storage
8. Improper food preparation

OBJECTIVE 8

1. E
2. D
3. B
4. G
5. C
6. F
7. A

OBJECTIVE 9

1, 4, 6, 9, 10, 12, 13

OBJECTIVE 10

1, 4, 6, 8, 9, 10

OBJECTIVE 11

Evaluated on Assignment Sheet 2.

OBJECTIVE 12

Evaluated on Assignment Sheet 3.

OBJECTIVE 13

Any seven (7) of the following in any order:

- Convenience in handling, storage, and use
- Desired shelf life
- Flexibility
- Perishability
- Preservation of food quality, shape, and texture
- Prevention of deterioration due to contact with oxygen, light, heat, and moisture
- Price
- Protection against contamination
- Protection against physical damage during transportation and handling
- Size, shape, and weight of the product
- Type of storage needed

OBJECTIVE 14

Evaluated on Assignment Sheet 4.

CIMC
TEST CODE SHEET

VOCATIONAL PROGRAM (BOOK TITLE) *Food Science and Personal Nutrition*

UNIT NUMBER AND TITLE — 3 — Handling and Storing Food

TOTAL NUMBER OF TEST QUESTIONS 97

TOTAL NUMBER OF BASIC SKILL QUESTIONS 8

OBJECTIVE NUMBER	TEST QUESTION NUMBER(S)	BASIC SKILL CODE(S)
1	1-11	X
2	1-7	X
3	1-9	X
4	1-11	X
5	1-12	X
6	Evaluated on AS 1	
7	1-8	S
8	1-7	X
9	1-15	X
10	1-10	X
11	Evaluated on AS 2	
12	Evaluated on AS 3	
13	1-7	X
14	Evaluated on AS 4	

INSTRUCTOR'S GUIDE

USING RECIPES

4

Required Activities and Resources (R)

These are fully integrated components of this CIMC curriculum. They are usually packaged in or with the curriculum and are essential in meeting the learning objectives. To individualize this unit, use the LAP Sheet supplied in your resources.

- Reproducible Handouts and Transparency Masters are included in the Instructor's Resource Package. Handouts should be copied for all students. Transparency Masters should be used to make overhead transparencies for use during instruction. A small copy of each Transparency Master appears in the student's Information Sheets.
- Non-reproducible resources are included in the student's curriculum.

Optional Activities and Resources (O)

These are suggested high-interest activities to help deliver learning objectives to students or to let students achieve objectives in an applied context. Select as many as you wish to use. Some activities use extra resources for further information about unit content. You can make them available in the classroom for in-depth study or optional activities, but their use is not required for meeting CIMC unit objectives.

FOCUS ASSIGNMENTS

Prereading

R Have the students collect and read recipes from friends, magazines, newspapers, or other sources. Ask the students to start thinking about whether the recipe is well written and if it provides all of the information they need.

Writing

R Have the students rewrite one recipe in their own words.

GENERAL INSTRUCTIONS

Assignment Sheets

R Review the directions and any specific guidelines.

R Make certain that any needed materials from the Instructor's Resource Package are available.

R Have the students complete the Assignment Sheet. Evaluate each student's performance and provide reteaching and retesting as necessary. Have the students repeat the Assignment Sheet until they achieve mastery.

R Complete each student's Competency Profile.

O Have the students volunteer to read aloud the directions and any special guidelines.

O Return the completed Assignment Sheets to the students so that they may use them for later reference if needed.

Job Sheets

R Review the introduction and evaluation criteria for the Job Sheet. Remind the students that they should not fill in the blanks in the Yes/No columns.

R Review and explain all general guidelines, safety cautions, and warnings.

R Make sure that all tools, equipment, and supplies are available.

R Demonstrate each of the procedures outlined in the Job Sheet.

R Allow the students to practice the Job Sheet skills before skills testing. Coach, correct, and supervise as necessary.

R Have the students complete the Job Sheet. Evaluate each student's performance and provide remediation as necessary. Have the students repeat the Job Sheet until they achieve mastery.

R Complete each student's Competency Profile.

R Return the completed Job Sheets to the students so that they may use them for later reference if needed.

O Have the students volunteer to read aloud the job guidelines, cautions, and warnings.

LAP Sheets

The LAP Sheets are an optional component that can be used to individualize instruction. The following instructions should be followed only if you are using the LAP Sheets.

R Explain the specific procedures to be followed to the students before they begin using the LAP Sheet. Be sure that each student understands the procedures for using the LAP Sheet.

R If you want the student to complete any of the assignments on the LAP Sheet that are labeled optional, assign these to the student. Be sure to provide any needed resources.

OBJECTIVE 1

Define the elements of a recipe.

O Lead a class discussion on the importance of following a recipe exactly. Ask the students what the consequences might be of failing to follow a recipe. Discuss the answers in class.

O Demonstrate the effects of incorrectly interpreting recipes: using the wrong temperatures, not pre-heating the oven for baked goods, adding whole eggs instead of separated eggs, etc. Discuss solutions.

O Ask the students to evaluate actual recipes to identify the elements that may be missing.

O Copy and distribute the Handout. Ask students to identify the cooking terms that are familiar to them. Discuss the terms that are unfamiliar.

O Show Transparency Masters 1-7.

O Discuss the importance of using the techniques a recipe calls for to achieve the best results.

O Have the students think of an experience they may have had when they, or someone in their family, ruined a food dish because they used the wrong technique or procedure during the preparation. Have the students write a short paragraph about the experience.

O Have the students find recipes for the following: vegetable casserole, soup with beans, a ground meat dish, a low-fat chicken dish. Have the students determine which basic preparations and cooking methods are used in each recipe.

O Have the class look through baked goods recipes. Have them identify commonly used terms in mixing and cutting.

OBJECTIVE 2

Recognize measurements used in recipes by their definitions.

R Lead a class discussion on the differences between standard measure and metric measure. Demonstrate the differences by using a measuring cup that has both standard and metric markings. Ask the students which type of measurement they use most often, and why.

O Show Transparency Masters 8 and 9.

O Have the students create a display of measuring equipment paired with the appropriate ingredients to be measured. Have the students discuss why certain ingredients are measured by using special techniques such as dry ingredients, shortening, and liquids.

O Have the students convert standard measures to metric. Test the results for accuracy.

O Demonstrate the proper measuring techniques for liquids, solid fats, powdered sugar, granulated sugar, brown sugar, and flour.

O Present ideas on how to adapt non-standardized equipment to get standard measurements.

O Have each student practice measuring techniques and separating eggs.

O Have the students measure one cup of flour using the following methods:

a. Very lightly spoon the flour into the cup until heaping, then level off.
b. Very lightly spoon the flour into the cup until heaping, but do not level off.
c. Shake the cup while spooning in the flour to make sure it has settled, then level off.
d. Pack the flour into the cup using a spoon, then level off.

Have the students pour each cup of flour onto a separate sheet of waxed paper and weigh them separately. Is there a difference in weights? If so, what is the difference? Discuss the implications for measuring accurately.

OBJECTIVE 3

State abbreviations commonly used in recipes.

R Lead a class discussion on which abbreviations might easily be confused with other abbreviations.

O Have the students look at cookbooks and note the abbreviations that they find in recipes. Have them pay attention to the metric measures.

OBJECTIVE 4 **Apply recipe math. (Assignment Sheet 1)**

R See the general instructions for all Assignment Sheets.

R Demonstrate how to use the Equivalent Measures Chart and the conversion formulas.

OBJECTIVE 5 **State principles for modifying a recipe.**

R Explain why some recipes should not be doubled. Use a doubled-recipe for cake as an example that might be difficult to make. Stress that making the recipe twice may be a better solution if more is needed.

O Identify modifications that are needed when cooking at higher altitudes. Ask the students to explain why these changes are needed. Have the students look through cookbooks and packages in the grocery store to find references on altitude modifications.

OBJECTIVE 6 **Modify a recipe. (Assignment Sheet 2)**

R See the general instructions for all Assignment Sheets.

O Divide the class into groups. Each group will bake a cake using variations on the same recipe: Group 1 makes the standard recipe, Group 2 divides the recipe, and Group 3 doubles the recipe. Have the students discuss the results and compare the variations. Discuss what adjustments were made to the ingredients, cookware, and baking times.

OBJECTIVE 7 **Solve problems involving ingredient alternatives. (Assignment Sheet 3)**

R See the general instructions for all Assignment Sheets.

O Have the students read different recipes. Then, have them explain what might happen if all the ingredients were not used or substituted.

O Ask the students to think of a time when they were missing an ingredient when making a recipe. Discuss what substitutions they made, if any, or what course of action they took.

O Divide the class into 4 groups. Have each group make one batch of cookies using different spices in each. Use cinnamon, allspice, cloves, and nutmeg. Have the class taste and compare the results.

O Have the students find a recipe in a cookbook and copy the ingredients. Then, ask the students to use the Table of Substitutions to see how many substitutes they can make. Have them write each substitution next to the proper recipe ingredient.

OBJECTIVE 8

Discuss the uses of spices, herbs, and garnishes.

R Bring to class a variety of herbs and spices. Have the students examine and smell the seasonings. One week later, arrange the same variety of herbs and spices on a tray. Blindfold the students and have them try to identify as many samples as they can.

O Show Transparency Masters 10 and 11.

O Discuss reasons garnishes make food more appealing.

O Have the students research and report on the historical significance of one herb or spice. The report should contain information about where the herb or spice is grown, and how long it has been used. Also have the students include two recipes that use the herb or spice as an ingredient.

O Have the students select a recipe (if time permits have them prepare the dish also) and prepare garnishes for the dish to present to the class.

O Take a field trip to a restaurant. Ask the chef or kitchen manager to demonstrate garnish preparations and explain how garnishes are used.

O Have the students research and report on the medicinal properties associated with herbs and spices.

O Have the students research the use of garnishes in Japanese cooking. Demonstrate techniques for cutting and slicing vegetables.

O Have the students research which aroma- and flavor-producing chemical compound is present in one of the following spices: cinnamon, cloves, allspice, and nutmeg.

O Invite a chef from a local restaurant to talk about the use of spices, herbs, and garnishes. Each student should prepare at least one question for the guest speaker.

OBJECTIVE 9

Determine spice alternatives. (Assignment Sheet 4)

R Explain that when doubling a recipe, doubling the amount of seasoning might be too much. Suggest that they start by adding only 1 1/2 times the amount and add more if needed.

O Give examples of purposeful alternatives. For example, herbs and spices keep foods flavorful while reducing sodium.

O Lead a class discussion on the reasons for the current selling prices of some herbs and spices.

O Have the students make herb butters and serve them in class for tasting. Ask the students to record and discuss their reactions to the different herbs.

OBJECTIVE 10

Select appropriate fats and oils for specific purposes.

O Show Transparency Master 12.

O Discuss the importance of low-fat cooking and using low-fat substitutes.

O Assign each student one food product that requires the use of fat in its preparation. Have the students decide what kind of fat or oil to choose for that use.

O Have the students design a bulletin board or poster identifying different kinds of fats and how they are used, such as in salad dressings, frying foods, butter in pastry, etc.

O Demonstrate to the students deep-fat frying and panfrying. Have them compare chicken fried by both methods. Discuss the differences.

OBJECTIVE 11

Define a time-work plan.

R Explain that the concept of "dovetailing" means fitting several tasks together so they are done at the same time. Ask the students to list examples of dovetailing.

O Lead a class discussion on why a time-work plan is necessary.

O Discuss ways to save physical energy in the kitchen.

OBJECTIVE 12

Prepare a time-work plan. (Assignment Sheet 5)

R See the general instructions for all Assignment Sheets.

EVALUATION

Pretest

- Use the unit Written Test for *both* the pretest and posttest. Give the students the pretest before they begin the unit.

- You may wish to use the CIMC publication *Measuring Learning and Competency Gains: The Pretest/Posttest Approach* for instructions and suggestions on giving pretests and using the results. Information for ordering this material is included in the optional resources section.

- Use pretest results to guide individual students in progressing through the unit, doing enrichment work, or moving to the next unit.

Focus Assignment

- Use an informal evaluation of the focus assignments as a diagnostic tool for determining if any students need extra help in reading comprehension or writing skills. Refer these students to their English instructor, Learning Resource Center, or Educational Enhancement Center.

Assignment Sheet

- Evaluate students on Assignment Sheet activities. Students must repeat an Assignment Sheet until they have mastered the activity.

- Complete each student's Competency Profile.

Skill Test

- Explain to the students that they will be asked to demonstrate the procedures on the Job Sheets as a skills test.

- Describe the rating scale used on the skills test.

- Reteach and retest as necessary.

- Complete each student's Competency Profile.

Posttest

- After they have completed the unit, give students the Written Test again.

- Explain to the students that they will be asked to demonstrate on the Written Test actions listed in the specific objectives.

- You may wish to use the CIMC publication *Measuring Learning and Competency Gains: The Pretest/Posttest Approach* for instructions and suggestions on giving posttests and using the results. Information for ordering this material is included in the optional resources section.

- Reteach and retest as necessary to meet individual student needs and state standards for student learning and competency gains.

- Complete the appropriate sections of the Competency Profiles.

- Review individual and group performance to evaluate teaching effectiveness. Adjust scope, sequence, or instructional methods for additional lessons as required.

OPTIONAL RESOURCES

Publications

- *Measuring Learning and Competency Gains: The Pretest/Posttest Approach.* Stillwater, OK: CIMC, Oklahoma Department of Vocational and Technical Education, 1992. For ordering information call 800-522-5810.

UNIT REFERENCES

Publications

- Duyff, Roberta et al. *Modern Meals.* Mission Hills, California: McGraw Hill, 1990.

- *Foundations for Living, Volume 1.* Stillwater, OK: CIMC, Oklahoma Department of Vocational and Technical Education, 1989.

- Freeland-Graves, Jeanne and Gladys Peckman. *Foundations of Food Preparation, 5th ed.* New York: MacMillan Publishing Co., 1987.

- Gibson, Leroy. *Food Production, Management and Services: Production, 2nd ed.* Stillwater, OK: The Mid-America Vocational Curriculum Consortium, Inc., 1992.

- *Baking Basics.* Denver, CO. Home Baking Association, 19**.

- Largen, Velda L. and Deborah L. Bence. *Guide to Good Food.* South Holland, IL: The Goodheart-Wilcox Company, Inc., 1992.

- Kowtaluk, Helen and Kopan, Alice O. *Food for Today*. Mission Hills, CA: Glencoe, 1990.

- Medved, Eva. *The World of Food.* Englewood Cliffs, NJ: Prentice Hall, 1990.

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- Vernon, Alice. *Foods.* St. Paul, MN: E.M.C. Corporation, 1988.

- Whitney, Elenor D.; Hamilton, Eva May; Rolfes, Sharon. *Understanding Nutrition (5th ed).* St. Paul, MN: West Publishing Company, 1990.

ASSIGNMENT SHEETS

OBJECTIVE 4

Assignment Sheet 1

1. a. Multiply each ingredient amount by 1/3.
   b. Step 1: 1/2 c X 1/3 = 1/6 c
      Step 2: 16 tablespoons = 1 c, so 8 tablespoons = 1/2 c
      Step 3: 8 X 1/3 = 8/3 = 2 2/3 tbsp
      Step 4: 1 tablespoon = 3 tsp, so 2/3 tbsp = 2 tsp
      Step 5: 2 tbsp plus 2 tsp milk

2. 76.6°C, using the formula: (tF-32) divided by 1.8 = degrees C.

3. 11 oz

4. 1 quart

5. Four pecks for $4.00 is the better deal. You save $1.00, since 4 pecks = 1 bushel.

6. 2 1/2 12-oz cans = 32 fluid oz = 1L

7. 1/3 cup

8. 12 tablespoons

9. 1 tablespoon

10. 3/4

OBJECTIVE 6

Assignment Sheet 2

Part 1

Evaluated by instructor

Part 2

1. 1 lb. or 16 oz.
2. 8 oz. or 1/2 lb.
3. 8 quarts or 1 peck
4. 16 tbsp. or 1 cup
5. 1 1/2 tsp.
6. 1/2 gal. or 2 quarts
7. 3 oz.

OBJECTIVE 7

Assignment Sheet 3

Situation 1
1/4 tsp baking soda plus 5/8 tsp Creme of Tartar, or 1/4 tsp baking soda plus 1/2 c sour milk, buttermilk or yogurt plus decrease the liquid by 1/2 c

Situation 2
6 tbsp cocoa and 2 tbsp butter for the chocolate.
1/2 tbsp vinegar or lemon juice plus enough milk to make 1/2 c

Situation 3
1 c honey; decrease liquid in recipe by 1/4 c

Situation 4
Substitute an equal amount of margarine.

OBJECTIVE 9

Assignment Sheet 4

Part 1

Evaluated to instructor's satisfaction.

Part 2

1. marjoram, basil

2. allspice, tumeric, cinnamon, dill, ginger, bay leaves, tarragon, coriander

3. spices: allspice, cinnamon, cloves, ginger, mace, nutmeg, poppy seeds
   herbs: caraway, coriander, cumin, dill, garlic

4. tarragon, marjoram, dill, basil, chives, chervil, sage, parsley, thyme, fennel

5. garlic, basil, oregano, pepper

OBJECTIVE 12

Assignment Sheet 5

Answers will vary according to the recipe each student has chosen. All of the categories on the time-work plan should be completed. Reasonable times should be allotted for each activity.

WRITTEN TEST

OBJECTIVE 1

1. length of time for food to reach its desired condition
2. ordered, step-by-step procedure for combining and handling the ingredients; may include presentation instructions
3. size and type of cookware needed
4. list of the exact form of the ingredients required for recipe; usually listed in the order they are to be combined
5. identifies the quantities of the ingredients to be used; may be in metric or traditional form or both
6. identifies the product you are preparing
7. temperature at which food should be cooked; given in degrees Fahrenheit, Celsius, or the condition of the food
8. the number of average servings the recipe will make

OBJECTIVE 2

1. length
2. size
3. temperature
4. time
5. unit
6. volume
7. weight

OBJECTIVE 3

1. c
2. doz
3. gal
4. hr
5. min
6. oz
7. pt
8. lb
9. qt
10. Tbsp or Tbs or T
11. tsp or t
12. cm
13. g
14. kg
15. L
16. mg
17. mL

OBJECTIVE 4

Evaluated on Assignment Sheet 1.

OBJECTIVE 5

1. each ingredient
2. a. smaller
   b. shorter time
3. a. larger
   b. longer time
4. meat roasts
5. Oven temperature will usually remain the same; baking time will be shorter.
6. tablespoons
7. beating

OBJECTIVE 6

Evaluated on Assignment Sheet 2.

OBJECTIVE 7

Evaluated on Assignment Sheet 3.

OBJECTIVE 8

1. from the root, seed, bark, flower, berry, or fruit of tropical vegetation
2. a pungent flavor
3. the leaves of plants
4. for their medicinal, savory, or aromatic properties
5. little or none
6. increases
7. dried herbs
8. Crushing releases the oils that hold an herb's flavor.
9. Salt controls the rate of yeast growth.
10. flavor, color, and texture

OBJECTIVE 9

Evaluated on Assignment Sheet 4.

OBJECTIVE 10

1. E
2. A
3. F
4. A
5. A
6. C
7. D
8. F
9. B
10. A
11. B

OBJECTIVE 11

A time-work plan is a step-by-step plan for preparing a recipe. It should include all activities required by the recipe, as well as the amount of time each activity will take.

OBJECTIVE 12

Evaluated on Assignment Sheet 5.

CIMC
TEST CODE SHEET

VOCATIONAL PROGRAM (BOOK TITLE) *Food Science and Personal Nutrition*

UNIT NUMBER AND TITLE — 4 — Using Recipes

TOTAL NUMBER OF TEST QUESTIONS 61

TOTAL NUMBER OF BASIC SKILL QUESTIONS 0

OBJECTIVE NUMBER	TEST QUESTION NUMBER(S)	BASIC SKILL CODE(S)
1	1-8	X
2	1-7	X
3	1-17	X
4	Evaluated on AS 1	
5	1-7	X
6	Evaluated on AS 2	
7	Evaluated on AS 3	
8	1-10	X
9	Evaluated on AS 4	
10	1-11	X
11	1	X
12	Evaluated on AS 5	

APPLYING FOOD SCIENCE PRINCIPLES

5

Required Activities and Resources (R)

These are fully integrated components of this CIMC curriculum. They are usually packaged in or with the curriculum and are essential in meeting the learning objectives. To individualize this unit, use the LAP Sheet supplied in your resources.

- Reproducible Handouts and Transparency Masters are included in the Instructor's Resource Package. Handouts should be copied for all students. Transparency Masters should be used to make overhead transparencies for use during instruction. A small copy of each Transparency Master appears in the student's Information Sheets.
- Non-reproducible resources are included in the student's curriculum.

Optional Activities and Resources (O)

These are suggested high-interest activities to help deliver learning objectives to students or to let students achieve objectives in an applied context. Select as many as you wish to use. Some activities use extra resources for further information about unit content. You can make them available in the classroom for in-depth study or optional activities, but their use is not required for meeting CIMC unit objectives.

FOCUS ASSIGNMENTS

Prereading

R Have the students read Handout 1, "Food Additives and the FDA."

Writing

R Have the students write a half-page paper addressing the questions, "Do you believe that the protection offered by the Food, Drug, and Cosmetic Act is adequate to ensure safe food products?" and "How do you think the FD & C Act can be strengthened?"

GENERAL INSTRUCTIONS

Assignment Sheets

R Review the directions and any specific guidelines.

R Make certain that any needed materials from the Instructor's Resource Package are available.

R Have the students complete the Assignment Sheet. Evaluate each student's performance and provide reteaching and retesting as necessary. Have the students repeat the Assignment Sheet until they achieve mastery.

R Complete each student's Competency Profile.

O Have the students volunteer to read aloud the directions and any special guidelines.

O Return the completed Assignment Sheets to the students so that they may use them for later reference if needed.

Job Sheets

R Review the introduction and evaluation criteria for the Job Sheet. Remind the students that they should not fill in the blanks in the Yes/No columns.

R Review and explain all general guidelines, safety cautions, and warnings.

R Make sure that all tools, equipment, and supplies are available.

R Demonstrate each of the procedures outlined in the Job Sheet.

R Allow the students to practice the Job Sheet skills before skills testing. Coach, correct, and supervise as necessary.

R Have the students complete the Job Sheet. Evaluate each student's performance and provide remediation as necessary. Have the students repeat the Job Sheet until they achieve mastery.

R Complete each student's Competency Profile.

R Return the completed Job Sheets to the students so that they may use them for later reference if needed.

O Have the students volunteer to read aloud the job guidelines, cautions, and warnings.

LAP Sheets

The LAP Sheets are an optional component that can be used to individualize instruction. The following instructions should be followed only if you are using the LAP Sheets.

R Explain the specific procedures to be followed to the students before they begin using the LAP Sheet. Be sure that each student understands the procedures for using the LAP Sheet.

R If you want the student to complete any of the assignments on the LAP Sheet that are labeled optional, assign these to the student. Be sure to provide any needed resources.

OBJECTIVE 1

Distinguish among the purposes of ingredients used in baking.

R Show Transparency Master 1.

O Have the students think about breads from different cultures and choose one to research. Each student should give an oral report of his or her findings.

O Demonstrate baking cookies in class. Have the students taste test homemade cookies and compare them to store-bought cookies of the same type. Discuss the taste and cost differences.

O Explain to the students the difference between drop batters, pour batters, and doughs.

O Take a class trip to the supermarket. Have the students look for different types of flour. Discuss the differences of each and how each is used.

O Have the class visit a bakery. The students should take notes and ask questions about the large quantities of baked goods produced.

OBJECTIVE 2

Demonstrate the roles of leavening agents. (Assignment Sheet 1)

R See the general instructions for all Assignment Sheets.

O Divide the class into 2 groups. Have one group prepare the recipe as given. Have the other group prepare the recipe using baking soda instead of baking powder. Have the class sample the results from both recipes.

O Have the students watch yeast growth through a microscope. Discuss how yeast differs from other leavening agents.

O Have the class test the action of baking soda as a leavening agent by stirring 1 T of baking soda into a 1/4 cup of molasses. Discuss the reaction that occurs.

OBJECTIVE 3 **Demonstrate the roles of thickening agents. (Assignment Sheet 2)**

R See the general instructions for all Assignment Sheets.

R Divide the class into groups of 3-4 to complete this Assignment Sheet. (However, students in each group must complete their own charts and answer any questions.)

O Show Transparency Masters 2 and 3.

O Discuss the roles of pectin and heat as thickeners in jelly making.

O Have the students look through recipes to find where and how thickening agents are used. The students should report to the class on their findings.

OBJECTIVE 4 **Test growing conditions for yeast. (Assignment Sheet 3)**

R See the general instructions for all Assignment Sheets.

O Team-teach this objective with a science instructor.

O Divide the class into groups of 3-4 to complete this Assignment Sheet. (However, students in each group must complete their own charts and answer any questions.)

O Have the students look through recipes in a cookbook to find products that use yeast. Have them search for the different forms of yeast and which is called for most often in recipes. The students should report their findings to the class.

O Explain to the class different mixing methods such as: straight dough method, fast mixing method, sponge method, and the batter or no-mix method.

O Have the students cut out pictures from magazines and newspapers of examples of quick and yeast breads. Display the photos on a poster board.

O Have the class try variations of this experiment using ice water, boiling water, and a hotter heat source.

OBJECTIVE 5

Bake a yeast bread product. (Job Sheet)

R See the general instructions for all Job Sheets.

R Show Transparency Masters 4-6.

R Demonstrate how to knead dough correctly.

R Have students prepare early so they can complete the job in one day.

O Ask students: When would you make homemade bread? Is there a flavor difference? Is the time worth the effort?

O Explain or demonstrate how to use a bread making machine. (You might cook another loaf in a conventional oven, compare the results, and discuss the results.)

O Suggest that students use a heating pad (with a washable cover or clean tea towel or hand towel) to help the bread rise faster.

OBJECTIVE 6

Explain how enzyme reactions are involved in food preparation.

O Discuss blanching of vegetables and how it affects enzyme activity before freezing.

O Discuss the effects of pH and temperature on enzyme activity. Have the students write a short paper on how enzyme activity is affected by temperature changes, pH changes, and irradiation.

OBJECTIVE 7

Demonstrate the role of enzymes in food preparation. (Assignment Sheet 4)

R See the general instructions for all Assignment Sheets.

O Contact the Oklahoma Beef Industry Council about obtaining beef certificates for teachers for classroom use. (Teachers in other states should contact their Beef Industry Council office.) Call (405) 840-3777 or write Oklahoma Beef Industry Council, 5101 N. Classen Blvd., Oklahoma City, OK 73118.

O Divide the class into groups of 3-4 to complete this Assignment Sheet. (However, students in each group must complete their own charts and answer any questions.)

O Demonstrate to the class what happens if meat is over tenderized. Place a few beef slices in a cup of fresh pineapple puree and place a few more slices in a cup without the puree. Leave both cups at room temperature overnight. The next day, test the pieces of meat by mashing them with a fork. Compare and discuss the textures.

OBJECTIVE 8

Distinguish among conventional, convection, and microwave cooking.

R Show Transparency Masters 7 and 8.

R Demonstrate to the class how microwave ovens work, how to cover and safely uncover food, and the safe way to remove food from a microwave oven.

O Have the students test for "hot spots" in a microwave oven. Place small pieces of food in different parts of the oven and compare the differences. Have the students present their findings to the class.

O Discuss with the class what could happen if you open the oven door (of a conventional oven) while baking bread.

O Explain to the class that not all microwaves are the same. Go over information relating to the different sizes and power levels of microwave ovens.

O Have the students look at cooking equipment at home and in the food laboratory and identify which equipment could be used for both the microwave and the conventional oven.

O Arrange a trip to a commercial kitchen that uses a convection oven. Discuss the advantages of convection ovens in commercial operations.

O Explain to the class why food placement and standing time are important in microwave cooking.

O Have the students visit a grocery store and read labels of convenience foods that require cooking. Have them find four products that give directions for both microwave cooking and conventional methods. The students should write down the name of the products and compare the directions for microwaving and conventional cooking. Ask selected students to give an oral report of their findings.

O Have the students place a cup of water in the microwave and a cup of water in a pot on the range top. Bring the water to a boil and compare the time differences.

O Have the students convert a conventional recipe to a microwave recipe and prepare it. Have them report on how the products turned out, and the differences in cooking times.

O Arrange a visit to the school cafeteria to look at the oven in use there.

OBJECTIVE 9

Compare the effects of cooking using various methods. (Assignment Sheet 5)

R See the general instructions for all Assignment Sheets.

O Divide the class into groups of 3-4 to complete this Assignment Sheet. (However, students in each group must complete their own charts and answer any questions.)

O Add a steamer basket as an additional variable.

OBJECTIVE 10

Explain the roles of acids and bases.

O Have the students make a list of foods they think are acid in reaction and report their findings to the class.

O Discuss with the class what accounts for the sour taste in most fruits, sour milk, and vinegar.

O Discuss how acid level in jelly can affect its quality.

OBJECTIVE 11

Determine the pH of food items. (Assignment Sheet 6)

R See the general instructions for all Assignment Sheets.

O Team-teach this objective with a science instructor.

O Divide the class into groups of 3-4 to complete this Assignment Sheet. (However, students in each group must complete their own charts and answer any questions.)

O Discuss the pH levels of water. Explain that hard water is less acidic but undesirable in food preparation (eg. ice tea cloudy, beans may not soften properly).

O Have the students test the pH balance of the tap water in their home. Is it soft or hard water? How does it taste? Ask the students to research methods of changing the pH of water and present their findings to the class.

OBJECTIVE 12

State the purposes of food additives.

R Distribute Handout 2, "Types of Food Additives." Describe different additives and explain why they are used.

O Supplement this objective with information from *Food Science, Safety & Nutrition* from the National Council for Agricultural Education.

O Have the students research and report on one food additive. The report should include the benefits and risks of the additive, alternatives for the additive, its use, and whether it is natural, artificial (synthetic), or both.

O Ask a livestock producer to speak to the class about the use of feed additives such as medicated feed or performance-stimulating additives. Have the producer discuss the advantages and disadvantages, as well as the regulation of additives.

O Collect and show FDA publications. Explain the scope of the FDA in the testing and regulation of food additives. Discuss the FDA's GRAS list (generally recognized as safe) of ingredients which can be used without special permission from the FDA. (Refer to Handout 1.)

O Have the students collect food labels that give additives as ingredients.

OBJECTIVE 13

Discuss the advantages and disadvantages of food additives.

O Explain and discuss the dangers of using sulfites as additives.

O Have the students research and give an oral presentation on the use of antibiotics in food animals.

O Have the students research and write a short paper on health concerns related to the use of artificial sweeteners.

O Discuss with the class the hazards of contaminants that get into food as it is grown, processed, or packaged. The students may pick a contaminant to research.

O Lead a discussion on testing additives through animal studies. What are the controversial issues associated with animal testing?

OBJECTIVE 14

Characterize natural and artificial food additives.

R Show Transparency Master 9.

O Discuss artificial additives which have natural counterparts and why each might be used. Mention consistency, the amount of natural additive needed to do the same job, etc.

O Have the students mix vinegar and oil together. Shake for 30 seconds, then record the time it takes them to separate. Discuss why they separate. Add 1 tsp of egg as an emulsifier or stabilizer and shake again. Record the time it takes to separate. Compare the differences in times.

OBJECTIVE 15

Distinguish among processes for preserving foods.

R Show Transparency Masters 10 and 11.

O Discuss dried fruits. Bring in samples of dried fruits or dry fruit as a class project. Let the students sample the fruit.

O Have the students compare canned beans, fresh beans, dried beans, and frozen beans. Determine the nutritional difference between them. The students should answer the question "Which is closest to the nutrient content of fresh beans?"

O Discuss which fruits and vegetables can be pickled.

O Invite a county extension agent to visit the class. Have the students ask about canning methods and write a report on the interview.

O Lead a class discussion on irradiation. Include the advantages or disadvantages of having a food product irradiated to increase its shelf life.

O Demonstrate the use of a food dehydrator and a pressure sauce pan.

OBJECTIVE 16

Compare methods of preserving a food item. (Assignment Sheet 7)

R See the general instructions for all Assignment Sheets.

OBJECTIVE 17

Describe the impact of the freezing process on foods.

R Show Transparency Master 12.

O Have the students list foods which are not usually frozen. Ask the students to discuss, on paper, why the foods they chose are not frozen.

O Conduct a class experiment to compare a product that is quick-frozen and slowly-frozen. Discuss the results.

O Demonstrate how to freeze a complete meal. Ask the students about the different techniques and precautions needed for different types of foods.

O Bring in baked cookies or have the class make a batch of cookies. Have the class put half the cookies in a loosely rolled paper bag and freeze. Put the other half of the cookies in an airtight plastic container and freeze. Have the class sample and determine the quality of the cookies after one month. Discuss which method of packaging preserved the cookies best.

OBJECTIVE 18

Analyze the effects of freezing on a food item. (Assignment Sheet 8)

R See the general instructions for all Assignment Sheets.

O Contact the Oklahoma Beef Industry Council about obtaining beef certificates for teachers for classroom use. (Teachers in other states should contact their Beef Industry Council office.) Call (405) 840-3777 or write Oklahoma Beef Industry Council, 5101 N. Classen Blvd., Oklahoma City, OK 73118.

O Divide the class into groups of 3-4 to complete this Assignment Sheet. (However, students in each group must complete their own charts and answer any questions.)

O Bring in a sample of meat that has freezer burn. Let the class observe the meat and discuss what has happened to the meat.

O Ask the students to prepare a package of flavored gelatin according to the directions on the box. Mix in 1/2 cup of fresh pineapple. Refrigerate according to the instructions, observe the results, and discuss the findings.

O Demonstrate how to wrap meat.

OBJECTIVE 19

Explain the impact of factors affecting cooking rates and results.

O Ask the students if they have ever noticed examples of the effects of each factor.

O Study labels or cake mix packages. Look for instructions for high-altitude cooking. Lead a class discussion.

OBJECTIVE 20

Analyze the impact of surface area on cooking rates and results. (Assignment Sheet 9)

R See the general instructions for all Assignment Sheets.

R Divide the class into groups of 3-4 to complete this Assignment Sheet. (However, students in each group must complete their own charts and answer any questions.)

OBJECTIVE 21

Analyze the impact of temperature on cooking rates and results. (Assignment Sheet 10)

R See the general instructions for all Assignment Sheets.

O Divide the class into groups of 3-4 to complete this Assignment Sheet. (However, students in each group must complete their own charts and answer any questions.)

EVALUATION

Pretest

- Use the unit Written Test for *both* the pretest and posttest. Give the students the pretest before they begin the unit.
- You may wish to use the CIMC publication *Measuring Learning and Competency Gains: The Pretest/Posttest Approach* for instructions and suggestions on giving pretests and using the results. Information for ordering this material is included in the optional resources section.
- Use pretest results to guide individual students in progressing through the unit, doing enrichment work, or moving to the next unit.

Focus Assignment

- Use an informal evaluation of the focus assignments as a diagnostic tool for determining if any students need extra help in reading comprehension or writing skills. Refer these students to their English instructor, Learning Resource Center, or Educational Enhancement Center.

Assignment Sheet

- Evaluate students on Assignment Sheet activities. Students must repeat an Assignment Sheet until they have mastered the activity.

- Complete each student's Competency Profile.

Skill Test

- Explain to the students that they will be asked to demonstrate the procedures on the Job Sheets as a skills test.

- Describe the rating scale used on the skills test.

- Reteach and retest as necessary.

- Complete each student's Competency Profile.

Posttest

- After they have completed the unit, give students the Written Test again.

- Explain to the students that they will be asked to demonstrate on the Written Test actions listed in the specific objectives.

- You may wish to use the CIMC publication *Measuring Learning and Competency Gains: The Pretest/Posttest Approach* for instructions and suggestions on giving posttests and using the results. Information for ordering this material is included in the optional resources section.

- Reteach and retest as necessary to meet individual student needs and state standards for student learning and competency gains.

- Complete the appropriate sections of the Competency Profiles.

- Review individual and group performance to evaluate teaching effectiveness. Adjust scope, sequence, or instructional methods for additional lessons as required.

REQUIRED RESOURCES

The items marked with an asterisk are included in the Instructor's Resource Package.

Publications

- "Food Additives and the FDA." Handout 1.*
- "Types of Food Additives." Handout 2.*

OPTIONAL RESOURCES

Publications

- *Food Additives.* Rockville MD.: Food and Drug Administration, 1994.
- *Food Science, Safety & Nutrition.* Alexandria, VA: National Council for Agricultural Education, 1993. To order, write the National Council for Agricultural Education, 5632 Mount Vernon Memorial Highway, P.O. Box 15035, Alexandria, VA 22309-0035, or call (703) 360-8832.
- *Measuring Learning and Competency Gains: The Pretest/Posttest Approach.* Stillwater, OK: CIMC, Oklahoma Department of Vocational and Technical Education, 1992. For ordering information call 800-522-5810.

UNIT REFERENCES

Publications

- *Baking Basics.* Denver, CO. Home Baking Association, 19**.
- Duyff, Roberta et al. *Modern Meals.* Mission Hills, California: McGraw Hill, 1990.
- *Food Additives.* Rockville MD.: Food and Drug Administration, 1994.
- *Foundations for Living, Volume 1.* Stillwater, OK: CIMC, Oklahoma Department of Vocational and Technical Education, 1989.
- Freeland-Graves, Jeanne and Gladys Peckman. *Foundations of Food Preparation, 5th ed.* New York: MacMillan Publishing Co., 1987.

- Gibson, Leroy. *Food Production, Management and Services: Production, 2nd ed.* Stillwater, Oklahoma: The Mid-America Vocational Curriculum Consortium, Inc., 1992.

- Kowtaluk, Helen and Kopan, Alice O. *Food for Today*. Mission Hills, CA: Glencoe, 1990.

- Largen, Velda L. and Deborah L. Bence. *Guide to Good Food.* South Holland, IL: The Goodheart-Willcox Company, Inc., 1992.

- Medved, Eva. *The World of Food.* Englewood Cliffs, New Jersey: Prentice Hall, 1990.

- Palan, Earl. *Food Production, Management and Services: Introduction, 2nd ed.* Stillwater, Oklahoma: The Mid-America Vocational Curriculum Consortium, Inc., 1992.

- Vernon, Alice. *Foods*. St. Paul, Minnesota: E.M.C. Corporation, 1988.

ANSWERS

APPLYING FOOD SCIENCE PRINCIPLES

5

ASSIGNMENT SHEETS

OBJECTIVE 2

Assignment Sheet 1

Results will vary but should include the following:

The muffin mix that produced the tallest muffins should be the mix with the baking powder. Baking powder creates carbon dioxide gas when mixed with a liquid. This helps the dough to rise and gives volume to the muffin. The muffins containing the baking powder should also be more tender and less dense. The flavor and color should not be affected by the absence or presence of baking powder. Students should also explain what they learned.

OBJECTIVE 3

Assignment Sheet 2

Results will vary for texture, color, consistency, and thickness. In terms of clarity (clear or cloudy): Mixture 2 (corn starch) will be clear, while Mixtures 1 and 3 (flour and egg) will be opaque.

OBJECTIVE 4

Assignment Sheet 3

9a. The water did not affect the yeast. To create a reaction, the yeast needs food in addition to warm temperatures.

9b. Glass C should be the best environment for the yeast to grow.

9c. Acid should slow down and eventually kill the yeast action. This is a function of how much acid is in the yeast.

9d. Salt should slow down and eventually kill the yeast action. This is a function of how much salt is in the yeast.

9e. A heat source that is too hot can kill the yeast. The proper temperature is essential for yeast growth; if the temperature is too cool, the yeast will not grow.

9f. Warm temperatures and the proper food must be present for yeast to grow.

OBJECTIVE 7

Assignment Sheet 4

Results may vary. Evaluate each student's Tenderization Observation Chart for completeness. Determine that each student has answered Question 20a-e.

OBJECTIVE 9

Assignment Sheet 5

Results may vary. The shorter times for both microwave and conventional cooking methods should produce properly cooked broccoli, and there should be very little difference between the two. The longer cooking times will produce overcooked vegetables and there will be a big difference between the two. The moisture evaporates very quickly in the microwave and the food becomes tough if overcooked. Vegetables become mushy when overcooked by the conventional method. Evaluate each student's Cooking Methods Observation Chart for completeness. Determine that each student has answered Question 14a-d:

14a. Micro 7 and Range 12

14b. Micro 7 and Range 12

14c. Answers may vary.

14d. No difference between Micro 7 and Range 12

OBJECTIVE 11

Assignment Sheet 6

Results may vary. Evaluate each student's pH Observation Chart for completeness. Evaluate also each student's responses to Question 6a-g:

6a. 3, 8, 9, 11, 12

6b. 1, 2, 4, 5, 6, 7, 10, 13

6c. 14

6d. Carbon dioxide was created; leavening

6e. Yes. In baking, to allow the bread to rise.

6f. It became neutral

6g. No, water pH varies. Ideally, it should be 7.5-8.5.

OBJECTIVE 16

Assignment Sheet 7

Results may vary. Evaluate each student's Orange Juice Comparison Chart for completeness. Determine that each student has answered Question 8a-g.

OBJECTIVE 18

Assignment Sheet 8

Results will vary. Evaluate each student's Freezing Observation Chart for completeness. If the food is properly prepared and packaged, there should be no negative effects to the frozen products with the exception of the celery. Determine that each student has answered Question 14a-f.

OBJECTIVE 20

Assignment Sheet 9

Results may vary. Evaluate each student's Surface Area and Cooking Rates Chart for completeness. Evaluate also each student's responses to Question 10a-e:

10a. With prolonged periods of cooking, the cellulose breaks down and pigments escape into the water. The carrots lose color and nutrients if overcooked.

10b. Answers will vary.

10c. The 1/8" slices cooked fastest.

10d. Yes. The smaller the carrots, the more quickly they cooked. (The smaller size allows heat to be conducted to the center of the slices faster.)

10e. If you must cook a vegetable quickly, cut it into smaller pieces. To cook evenly, cut the vegetables into pieces of a uniform size.

OBJECTIVE 21

Assignment Sheet 10

Results may vary. Evaluate each student's Temperature and Cooking Rate Chart for completeness. Evaluate also each student's responses to Question 11a-c:

11a. Answers will vary.

11b. Answers will vary.

11c. The hotter temperature cooked the potato faster.

WRITTEN TEST

OBJECTIVE 1

1. c
2. a
3. d
4. b
5. c

OBJECTIVE 2

Evaluated on Assignment Sheet 1.

OBJECTIVE 3

Evaluated on Assignment Sheet 2.

OBJECTIVE 4

Evaluated on Assignment Sheet 3.

OBJECTIVE 5

Evaluated on the Job Sheet.

OBJECTIVE 6

1. The proteins
2. Thin cuts
3. Certain enzymes are activated at the death of an animal and will tenderize and add flavor to the meat. This process is called aging.
4. Enzyme activity
5. In plant tissues
6. Sugar
7. Slow or stop enzyme activity
8. Collagen

OBJECTIVE 7

Evaluated on Assignment Sheet 4.

OBJECTIVE 8

1. C
2. A
3. A
4. C
5. A
6. C
7. B
8. B
9. B
10. A
11. C
12. B
13. C
14. C
15. B
16. C

OBJECTIVE 9

Evaluated on Assignment Sheet 5.

OBJECTIVE 10

For acids, any four (4) of the following:

- Used in making sherbets, carbonated beverages, and fruit drinks to intensify their flavor and tart taste
- Some, such as vinegar or lemon juice, prevent undesirable color changes in red vegetables cooked in hard water
- In jelly making, changes the nature of pectin so that it forms the proper bonds
- Can increase tenderness of meat when used in a marinade or when added during cooking
- Can produce a leavening agent for baking
- Can decrease the thickening power of a starch
- Can prevent discoloration in cut low-acid fruits such as bananas, apples and pears
- Help to neutralize the effects of bases in foods

For bases: Help to neutralize the effects of acids in foods

OBJECTIVE 11

Evaluated on Assignment Sheet 6.

OBJECTIVE 12

Answers should include six (6) of the following:

- Preserve food to increase shelf life
- Maintain product consistency
- Improve, maintain, or restore nutritional value
- Maintain product texture
- Improve flavor
- Speed aging of foods
- Give desired color and enhance attractiveness
- Provide leavening
- Control acidity and alkalinity

OBJECTIVE 13

Paragraphs should include at least two (2) of the following advantages and disadvantages:

- **Advantages**
    - Help increase the food supply
    - Help reduce nutritional deficiencies in many people
    - Expands offering of food products
    - Make food safer for human consumption
- **Disadvantages**
    - May not be safe for all people
    - Can produce toxic effects at some level
    - Can increase long-term health risks due to overuse
    - May disguise poor food quality, handling, or processing
    - May significantly destroy nutrients
    - May be used to deceive the consumer

OBJECTIVE 14

1. N
2. A
3. N
4. A
5. A
6. N
7. A

OBJECTIVE 15

1. Irradiation
2. Pickling
3. Fermenting
4. Canning
5. Canning
6. Freeze-drying
7. Drying
8. Seasoning and smoking
9. Pickling

OBJECTIVE 16

Evaluated on Assignment Sheet 7.

OBJECTIVE 17

1. Freezing slows enzyme activity.
2. No.
3. Flavor, texture, appearance, and nutritive value
4. They form large ice crystals and lose water content as they thaw.
5. Their crisp texture
6. Slowly-frozen meat denatures proteins, making them unable to reabsorb water when they thaw.
7. Rapid freezing
8. They can be blanched.

OBJECTIVE 18

Evaluated on Assignment Sheet 8.

OBJECTIVE 19

1. The greater the surface area, the faster the cooking rate.
2. The more compact a food is, the longer its cooking time.
3. Vitamins
4. Low temperatures
5. Because they cook at lower temperature levels than at lower altitudes.
6. On cloudy days
7. They are released into the liquid used for cooking.
8. It shrinks

OBJECTIVE 20

Evaluated on Assignment Sheet 9.

OBJECTIVE 21

Evaluated on Assignment Sheet 10.

CIMC
TEST CODE SHEET

VOCATIONAL PROGRAM (BOOK TITLE) ***Food Science and Personal Nutrition***

UNIT NUMBER AND TITLE — 5 — Applying Food Science Principles

TOTAL NUMBER OF TEST QUESTIONS 73

TOTAL NUMBER OF BASIC SKILL QUESTIONS 30

OBJECTIVE NUMBER	TEST QUESTION NUMBER(S)	BASIC SKILL CODE(S)
1	1-5	X
2	Evaluated on AS 1	
3	Evaluated on AS 2	
4	Evaluated on AS 3	
5	Evaluated on the JS	
6	1-8	S
7	Evaluated on AS 4	
8	1-16	X
9	Evaluated on AS 5	
10	1-4; 1	W,S
11	Evaluated on AS 6	
12	1-6	X
13	1	W,S
14	1-7	X
15	1-9	X
16	Evaluated on AS 7	
17	1-8	S
18	Evaluated on AS 8	

OBJECTIVE NUMBER	TEST QUESTION NUMBER(S)	BASIC SKILL CODE(S)
19	**1-8**	**S**
20	**Evaluated on AS 9**	
21	**Evaluated on AS 10**	

INSTRUCTOR'S GUIDE

PROFILING FOOD PRODUCTS

6

Required Activities and Resources (R)

These are fully integrated components of this CIMC curriculum. They are usually packaged in or with the curriculum and are essential in meeting the learning objectives. To individualize this unit, use the LAP Sheet supplied in your resources.

- Reproducible Handouts and Transparency Masters are included in the Instructor's Resource Package. Handouts should be copied for all students. Transparency Masters should be used to make overhead transparencies for use during instruction. A small copy of each Transparency Master appears in the student's Information Sheets.
- Non-reproducible resources are included in the student's curriculum.

Optional Activities and Resources (O)

These are suggested high-interest activities to help deliver learning objectives to students or to let students achieve objectives in an applied context. Select as many as you wish to use. Some activities use extra resources for further information about unit content. You can make them available in the classroom for in-depth study or optional activities, but their use is not required for meeting CIMC unit objectives.

FOCUS ASSIGNMENTS

Prereading

R Have the students read the Handout "Careers in Agriculture." Copy the Handout as needed.

Writing

R Ask the students to list the careers in the agricultural field which exist in their communities.

GENERAL INSTRUCTIONS

Assignment Sheets

R Review the directions and any specific guidelines.

R Make certain that any needed materials from the Instructor's Resource Package are available.

R Have the students complete the Assignment Sheet. Evaluate each student's performance and provide reteaching and retesting as necessary. Have the students repeat the Assignment Sheet until they achieve mastery.

R Complete each student's Competency Profile.

O Have the students volunteer to read aloud the directions and any special guidelines.

O Return the completed Assignment Sheets to the students so that they may use them for later reference if needed.

Job Sheets

R Review the introduction and evaluation criteria for the Job Sheet. Remind the students that they should not fill in the blanks in the Yes/No columns.

R Review and explain all general guidelines, safety cautions, and warnings.

R Make sure that all tools, equipment, and supplies are available.

R Demonstrate each of the procedures outlined in the Job Sheet.

R Allow the students to practice the Job Sheet skills before skills testing. Coach, correct, and supervise as necessary.

R Have the students complete the Job Sheet. Evaluate each student's performance and provide remediation as necessary. Have the students repeat the Job Sheet until they achieve mastery.

R Complete each student's Competency Profile.

R Return the completed Job Sheets to the students so that they may use them for later reference if needed.

O Have the students volunteer to read aloud the job guidelines, cautions, and warnings.

LAP Sheets

The LAP Sheets are an optional component that can be used to individualize instruction. The following instructions should be followed only if you are using the LAP Sheets.

R Explain the specific procedures to be followed to the students before they begin using the LAP Sheet. Be sure that each student understands the procedures for using the LAP Sheet.

R If you want the student to complete any of the assignments on the LAP Sheet that are labeled optional, assign these to the student. Be sure to provide any needed resources.

OBJECTIVE 1

Identify the tender and less tender cuts of beef, pork, and lamb.

R Show Transparency Master 1.

O Visit a local grocery store or meat market to show the students examples of various cuts of meat.

O Display meat cuts wall charts (available from the CIMC or the National Live Stock and Meat Board).

OBJECTIVE 2

Distinguish among the quality grades of beef, lamb, pork, and poultry.

R Discuss with the students that cows (female bovine that have had one or more calves) cannot be given the quality rating of prime. Bulls and stags (male bovine which have been castrated after reaching sexual maturity) cannot be given the quality rating of prime. In these two cases, the ratings "Select" and "Standard" have been combined to form the "Good" rating.

R Prime beef is used in hotels and restaurants; Choice and Select are available in grocery stores; and Standard, Commercial, Utility, Cutter, and Canner are used in processed meat and less expensive ground meat.

O Take the class to a local meat processing plant for a tour of the facility. Ask the person leading the tour to discuss and show examples of the various quality grades of beef, lamb, pork, and poultry.

OBJECTIVE 3 **Distinguish between fish and shellfish.**
OBJECTIVE 4 **Distinguish among common forms of fresh fish products.**

- O Take a class field trip to a local fish market and/or fish farm.
- O Discuss related issues, such as over fishing, "dolphin-safe" products, and other examples.
- O For additional information and picture identification, refer to *Agricultural Products and Processing.*
- O Discuss the characteristics of fresh (and not-so-fresh) fish. Fresh fish should have a fresh, mild, or sweet odor, or none at all; clear, shiny eyes (not cloudy); firm flesh; red or pink gills (not brown or gray); and shiny, tight scales (not loose and dull).

OBJECTIVE 5 **List point-of-purchase nutrition information for raw meats, fish, and poultry.**

- R Explain to the students that point-of-purchase materials are not subject to the nutrition labeling format requirements for packaged items.
- O Obtain and refer to *Focus on Food Labeling: FDA Consumer Special Report* for additional information.

OBJECTIVE 6 **Match forms of milk to their descriptions.**

- O Discuss with the class what it means to pasteurize and homogenize milk.
- O Take a tour of a local dairy and/or milk product processing plant. Ask the facility expert to discuss the differences in facilities and equipment used to produce Grade A or Grades B and C on the farm.
- O Invite a State or County Health Department official to visit the class to discuss milk and food sanitation regulations.

OBJECTIVE 7 **Evaluate selected dairy products. (Assignment Sheet 1)**

- R See the general instructions for all Assignment Sheets.
- O Provide the students with the products that are to be evaluated as an in-class assignment. Group the class per dairy product type.

O Instructors may contact their regional Associated Milk Producers, Inc. consumer services department for assignment ideas and/or supplemental information.

O Expand this assignment to include other food products (in addition to dairy products).

OBJECTIVE 8

Name the various parts of plants from which vegetables come.

O Bring to class samples of each of the types of plants discussed in the objective.

OBJECTIVE 9

Distinguish among ways in which fruits or vegetables are processed.

O Bring to class samples of fruits and vegetables processed using the various methods discussed in this objective. Let the students observe and taste the differences. Lead a class discussion on the students' impressions.

OBJECTIVE 10

Identify types of grains.

R Review with the class that grain products are complex carbohydrates and are excellent sources of energy and fiber. Discuss the essential nutrients found in grain products. Inform the students that when grains are combined with legumes or animal proteins, they also provide high-quality proteins.

O Refer to *Agricultural Products and Processing*, Unit VIII, Objective 2 for picture examples and additional information on each grain type.

O Each part of a kernel of grain contains different nutrients. Lead a class discussion on the parts of grain and the function of each.

O Invite the Agriculture Education instructor to visit the class and present additional information on grains and grain products and processing.

O Bring to class examples of each grain type discussed.

OBJECTIVE 11

Distinguish among types of flour by their uses.

R Discuss with the students about how flour makes up the structure of a baked product. Gluten is made up of the proteins in flour, and is the substance that gives flour the quality to absorb, swell, and stick together when liquid is added. Provide additional information on gluten and what effect it has on a products final shape and texture.

OBJECTIVE 12

Distinguish among natural and artificial sweeteners in foods.

O Lead a discussion on the pros and cons of artificial sweeteners.

O Show examples of sweetener labels that identify who should not use the product.

O Provide samples of various sweeteners for the students to taste and compare.

O Remind the class that "-ose" indicates a type of sugar.

OBJECTIVE 13

Demonstrate the roles of sweeteners in cooking. (Assignment Sheet 2)

R See the general instructions for all Assignment Sheets.

O Organize the class into groups. A separate group could prepare gelatin (sugar-free), gelatin sweetened with sugar, pudding, etc.

O Since sweeteners give baked products different flavors, let the students experiment with recipes using natural and artificial sweeteners. The students may want to write the manufacturers for recipes using particular products. Compare the taste and texture differences of the final products to those same products made with natural sugar.

O Instruct the students to work in groups in the classroom. Recipes from which to choose might be provided by the instructor.

O Remind the students that their experiments will be successful even if the products produced are not acceptable (to eat).

OBJECTIVE 14

Profile a career involving agricultural food products and processing. (Assignment Sheet 3)

R See the general instructions for all Assignment Sheets.

O Invite a panel of guests who have careers involving agriculture products and processing to visit the class to discuss their various positions.

EVALUATION

Pretest

- Use the unit Written Test for both the pretest and posttest. Give the students the pretest before they begin the unit.

- You may wish to use the CIMC publication *Measuring Learning and Competency Gains: The Pretest/Posttest Approach* for instructions and suggestions on giving pretests and using the results. Information for ordering this material is included in the optional resources section.

- Use pretest results to guide individual students in progressing through the unit, doing enrichment work, or moving to the next unit.

Focus Assignment

- Use an informal evaluation of the focus assignments as a diagnostic tool for determining if any students need extra help in reading comprehension or writing skills. Refer these students to their English instructor, Learning Resource Center, or Educational Enhancement Center.

Assignment Sheet

- Evaluate students on Assignment Sheet activities. Students must repeat an Assignment Sheet until they have mastered the activity.

- Complete each student's Competency Profile.

Skill Test

- Explain to the students that they will be asked to demonstrate the procedures on the Job Sheets as a skills test.

- Describe the rating scale used on the skills test.

- Reteach and retest as necessary.

- Complete each student's Competency Profile.

Posttest

- After they have completed the unit, give students the Written Test again.
- Explain to the students that they will be asked to demonstrate on the Written Test actions listed in the specific objectives.
- You may wish to use the CIMC publication *Measuring Learning and Competency Gains: The Pretest/Posttest Approach* for instructions and suggestions on giving posttests and using the results. Information for ordering this material is included in the optional resources section.
- Reteach and retest as necessary to meet individual student needs and state standards for student learning and competency gains.
- Complete the appropriate sections of the Competency Profiles.
- Review individual and group performance to evaluate teaching effectiveness. Adjust scope, sequence, or instructional methods for additional lessons as required.

REQUIRED RESOURCES

The items marked with an asterisk are included in the Instructor's Resource Package.

Publications

- "Careers in Agriculture." Handout.*

OPTIONAL RESOURCES

Publications

- *Agricultural Products and Processing.* Stillwater, Oklahoma: Oklahoma Department of Vocational and Technical Education, Curriculum and Instructional Materials Center, 1990.
- *Focus on Food Labeling. An FDA Consumer Special Report.* Rockville, MD.: Food and Drug Administration, U.S. Public Health Service, Department of Health and Human Services, 1993.

- *Measuring Learning and Competency Gains: The Pretest/Posttest Approach.* Stillwater, OK: CIMC, Oklahoma Department of Vocational and Technical Education, 1992. For ordering information call 800-522-5810.

- *The Food Guide Pyramid.* Home and Garden Bulletin No. 252. Washington, D.C.: United States Department of Agriculture, Human Nutrition Information Service, 1992.

Other Media

- Meat cuts wall charts. Available from the CIMC, or from the National Live Stock and Meat Board, 444 North Michigan Avenue, Chicago, IL 60611, phone 1-800-368-3138.

UNIT REFERENCES

Publications

- *Agricultural Products and Processing.* Stillwater, Oklahoma: Oklahoma Department of Vocational and Technical Education, Curriculum and Instructional Materials Center, 1990.

- Duyff, Hasler, and Ohl. *Modern Meals.* Oklahoma City, Oklahoma: McGraw-Hill, 1990.

- *Focus on Food Labeling. An FDA Consumer Special Report.* Rockville, MD.: Food and Drug Administration, U.S. Public Health Service, Department of Health and Human Services, 1993.

- Kowtaluk, Helen. *Discovering Nutrition.* Mission Hills, California: Glencoe, 1986.

- Kowtaluk, Helen and Alice Kopan. *Food for Today.* Mission Hills, California: Glencoe, 1990.

- Largen, Velda and Deborah Bence. *Guide to Good Food.* South Holland, Illinois: Goodheart-Willcox, 1992.

- Medved, Eva. *The World of Food.* Englewood Cliffs, New Jersey: Prentice Hall, 1990.

- Mehas, Kay and Sharon Rodgers. *Food Science and You.* Mission Hills, California: Glencoe, 1989.

- *The Food Guide Pyramid.* Home and Garden Bulletin No. 252. Washington, D.C.: United States Department of Agriculture, Human Nutrition Information Service, 1992.

ASSIGNMENT SHEETS

OBJECTIVE 7

Assignment Sheet 1

Answers will vary, but each student should:

- Choose a type of dairy product to evaluate.
- Obtain three different samples of the same type of dairy product.
- Examine each product and record the name, nutrition facts, and cost for each.
- Evaluate the taste, aroma, and texture of each product.
- Rank the products from the most to the least desirable using the Product Evaluation Form.

OBJECTIVE 13

Assignment Sheet 2

Answers will vary, but each student should:

- Choose a recipe that calls for sugar or a natural sweetener. Attach a recipe copy to the Assignment Sheet.
- Choose a sugar substitute to use in the recipe.
- Make one complete recipe using the sugar or natural sweetener.
- Make one complete recipe using the chosen sugar substitute.
- Sample both products.

- Evaluate the final products based on the following:
  - ☐ What sugar or natural sweetener was used.
  - ☐ What sugar substitute was used.
  - ☐ How the products differ in texture.
  - ☐ How the products differ in taste.
  - ☐ How the products differ in calories.
  - ☐ Which product the student would prefer to eat and why.

OBJECTIVE 14

Assignment Sheet 3

All answers will vary, but each student should:

- List three careers of interest.
- Choose one of the above listed careers to profile, and answer the following:
  - ☐ Which career will be profiled?
  - ☐ Why does this career interest the student?
  - ☐ What requirements and special qualifications are needed for this career?
  - ☐ What does the student think the job outlook will be for this career?
  - ☐ What salary range does the career offer?
  - ☐ What sources of information were used to complete this assignment?

WRITTEN TEST

OBJECTIVE 1

1. LT
2. T
3. LT
4. T
5. LT
6. T
7. LT
8. T
9. LT
10. T
11. LT
12. T
13. T
14. T
15. T

OBJECTIVE 2

1. B
2. D
3. C
4. A

OBJECTIVE 3

1. a
2. d
3. c
4. a

OBJECTIVE 4

1. G
2. B
3. C
4. A
5. F
6. E
7. D

OBJECTIVE 5

- Name of the meat or poultry cut
- Serving size based on raw or cooked weight
- Calories per serving
- Calories from total fat per serving
- Amount per serving – by weight and by percentage of Daily Value – for total fat, saturated fat, cholesterol, sodium, total carbohydrate, and dietary fiber
- Amount by weight of sugars and protein

- Percentage of Daily Values per serving for vitamins A and C, and calcium and iron

OBJECTIVE 6

1. O
2. A
3. M
4. E
5. J
6. L
7. N
8. D
9. Q
10. C
11. B
12. F
13. R
14. G
15. K

OBJECTIVE 7

Evaluated on Assignment Sheet 1.

OBJECTIVE 8

1, 2, 4, 5, 6, 8, 9, 11, 12, 13, 15, 16

OBJECTIVE 9

1. K
2. E
3. H
4. I
5. G
6. J
7. C

OBJECTIVE 10

1. I
2. H
3. D
4. E
5. G
6. A

OBJECTIVE 11

1. D
2. B
3. G
4. E
5. A
6. C
7. F
8. H

OBJECTIVE 12

1. A
2. A
3. N
4. N
5. N
6. N
7. A
8. N

OBJECTIVE 13

Evaluated on Assignment Sheet 2.

OBJECTIVE 14

Evaluated on Assignment Sheet 3.

CIMC
TEST CODE SHEET

VOCATIONAL PROGRAM (BOOK TITLE) *Food Science and Personal Nutrition*

UNIT NUMBER AND TITLE — 6 — Profiling Food Products

TOTAL NUMBER OF TEST QUESTIONS 97

TOTAL NUMBER OF BASIC SKILL QUESTIONS 0

OBJECTIVE NUMBER	TEST QUESTION NUMBER(S)	BASIC SKILL CODE(S)
1	1-15	X
2	1-4	X
3	1-4	X
4	1-7	X
5	1-7	X
6	1-15	X
7	Evaluated on AS 1	
8	1-16	X
9	1-7	X
10	1-6	X
11	1-8	X
12	1-8	X
13	Evaluated on AS 2	
14	Evaluated on AS 3	

INSTRUCTOR'S
GUIDE

MAKING HEALTHY FOOD CHOICES

7

Required Activities and Resources (R)

These are fully integrated components of this CIMC curriculum. They are usually packaged in or with the curriculum and are essential in meeting the learning objectives. To individualize this unit, use the LAP Sheet supplied in your resources.

- Reproducible Handouts and Transparency Masters are included in the Instructor's Resource Package. Handouts should be copied for all students. Transparency Masters should be used to make overhead transparencies for use during instruction. A small copy of each Transparency Master appears in the student's Information Sheets.
- Non-reproducible resources are included in the student's curriculum.

Optional Activities and Resources (O)

These are suggested high-interest activities to help deliver learning objectives to students or to let students achieve objectives in an applied context. Select as many as you wish to use. Some activities use extra resources for further information about unit content. You can make them available in the classroom for in-depth study or optional activities, but their use is not required for meeting CIMC unit objectives.

FOCUS ASSIGNMENTS

Prereading

R Have the students read one article or story from a magazine or newspaper that deals with healthy food choices.

Writing

R Ask the students to list any guidelines or conclusions that the article or story presents for making personal food choices. Then, ask them to state whether they agree or disagree with the guidelines or conclusions in a short paragraph.

GENERAL INSTRUCTIONS

Assignment Sheets

R Review the directions and any specific guidelines.

R Make certain that any needed materials from the Instructor's Resource Package are available.

R Have the students complete the Assignment Sheet. Evaluate each student's performance and provide reteaching and retesting as necessary. Have the students repeat the Assignment Sheet until they achieve mastery.

R Complete each student's Competency Profile.

O Have the students volunteer to read aloud the directions and any special guidelines.

O Return the completed Assignment Sheets to the students so that they may use them for later reference if needed.

LAP Sheets

The LAP Sheets are an optional component that can be used to individualize instruction. The following instructions should be followed only if you are using the LAP Sheets.

R Explain the specific procedures to be followed to the students before they begin using the LAP Sheet. Be sure that each student understands the procedures for using the LAP Sheet.

R If you want the student to complete any of the assignments on the LAP Sheet that are labeled optional, assign these to the student. Be sure to provide any needed resources.

OBJECTIVE 1

Discuss the relationship between good nutrition and good health.

O Introduce the unit by leading a class discussion on how maintaining good health requires making informed and nutritionally sound food choices, as well as exercising and reducing stress.

O Show the video *Nutrition in the Fast Lane*. Discuss its contents as an introduction to the unit.

O Show the video *Women and Nutrition*.

OBJECTIVE 2

State Dietary Guidelines for Americans.

O Invite the director of dietetics from a local hospital to visit the class and discuss how dietary guidelines can be incorporated into an enjoyable diet.

O A seventh Dietary Guideline addresses alcohol consumption. Specifically, the guideline states that persons who drink alcoholic beverages should do so in moderation. Such beverages supply calories, but little or no nutrients. If you choose to present this information, state also that alcohol is the cause of many health problems, accidents, and can lead to addiction.

OBJECTIVE 3

State the Dietary Guidelines' recommendation for limiting fat and saturated fat.

O Have the students calculate the number of grams of fat that provide 30% of calories in their daily diets by doing the following:

A. Multiply the total day's calories by 0.30 to get calories from fat per day. For example: 2,200 calories X 0.30 = 660 calories from fat.

B. Divide calories from fat per day by 9 (each gram of fat has 9 calories) to get grams of fat per day. For example: 660 calories from fat divided by 9 = 73 grams of fat.

O Show the video *Break Your Behavior Chains.*

O Find applications for Trimming the Fat, a menu planning guide for school cafeterias. To order, contact the American School Food Service Association Emporium, 3620 S. Galapago St., Englewood, CO 80110, phone 303 761-0061

OBJECTIVE 4

Interpret the Food Guide Pyramid.

R Show Transparency Masters 1-3.

O Show the video *The Food Guide Pyramid.*

O Name examples of various foods and ask the students in which food group each food would be classified. Ask for examples of students' favorite foods and have the students classify them according to the Food Guide Pyramid.

O Assign groups of students to each level in the Food Guide Pyramid. Each group must make a presentation to the class. This way, the class will "build" the Food Guide Pyramid.

OBJECTIVE 5

Compare the nutritional value of the major food groups.

O Refer to *The Food Guide Pyramid* for additional information and examples from the major food groups.

OBJECTIVE 6

Define serving sizes for the Food Guide Pyramid.

O Demonstrate what constitutes a serving of food from each of the various food groups. Show samples of the serving sizes.

O Explain to the class that the Dietary Guidelines for Americans offer a guide to the foods that should be included daily in meals. While eating food from the basic food groups in the amounts given in the Food Guide Pyramid is not the only way to maintain a healthy diet, following the guidelines will form a foundation for a diet that provides the essential nutrients.

O Show the video *How to Read the New Food Label.*

O Show the video *Smart Supermarket Shopping with the New Food Label.*

O Show the video *The Complete Guide to Nutrition Food Labels: The Inside Story of What's Inside.*

OBJECTIVE 7

Interpret the "Nutrition Facts" label. (Assignment Sheet 1)

R See the general instructions for all Assignment Sheets.

R Provide students with Handout 1, "Nutrition Facts."

O Bring examples of Nutrition Facts labels to class and go over the labels with the students.

O Obtain the FDA publication *Focus on Food Labeling* and make it available for students to read.

O Contact the FDA/USDA Food Labeling Education Information Center for more food labeling information. Through its database of educational activities, the center can put educators in touch with trade groups, consumer organizations, health professionals, other educators, governments agencies, and private companies producing materials on the new food label. Write or call: Food and Nutrition Information Center/National Agricultural Library, Room 304, 10301 Baltimore Blvd., Beltsville, MD 20705-2351, phone (301) 504-5719, FAX (301)504-6409.

OBJECTIVE 8 **Profile nutritional needs over the life cycle.**

- O Divide the class into groups to plan meals for each of the life stages based on the needs of each stage.
- O Discuss how a teenager's poor diet can contribute to diseases, such as osteoporosis, that appear in later life.
- O Distribute Handout 2, "Nutrition and Cognitive Development in Children." Lead a class discussion of the findings.
- O Provide additional reading material, such as the Tufts University School of Nutrition *Statement on The Link Between Nutrition and Cognitive Development in Children*. Ask the students to prepare brief summaries of their findings to share with the class.
- O Invite a child development specialist to visit the class to discuss the relationship between nutrition and cognitive development in children.

OBJECTIVE 9 **Research the relationship between nutrition and wellness. (Assignment Sheet 2)**

- R See the general instructions for all Assignment Sheets.

OBJECTIVE 10 **State healthy substitutes for specific foods.**

- O Provide the students with eggs, egg substitutes, and recipes using each. Allow the students to experiment with both and compare the differences in taste, texture, nutrition, and overall product appearance.
- O Explain that vegetarians can get the essential amino acids they need for good health by using a method called protein complementarity. Explain how plant foods can be combined at each meal to get all the essential amino acids needed.
- O Have interested students research the various vegetarian diets, the foods that can be substituted in a vegetarian diet, and the benefits and risks of such diets. Allow them to report their findings to the class.
- O Refer the class to a chart that gives examples of how to make food substitutions. Remind the students that recipes for baked products are often actually complex chemical formulas. Any changes in the recipe can change the final product. It often takes experience and a knowledge of food science to successfully modify recipes.

O Make a food product using healthy substitutes. Have the class sample the results.

OBJECTIVE 11

Modify a recipe for a special situation. (Assignment Sheet 3)

R See the general instructions for all Assignment Sheets.

R If students prepare their modified recipes, remind them that the result may not be acceptable. Let them know in advance that an unsatisfactory product does not represent an unsatisfactory experiment.

O Provide the students with recipes and/or conditions that they can use if they cannot find their own examples.

O Allow groups of students to prepare a sampling of the modified recipes for the class.

OBJECTIVE 12

Distinguish nutrition facts from fallacies.

O Many other nutrition facts and fallacies are not included in this objective. Ask each student to uncover one fallacy and report the corresponding facts to the class.

O Show the video *The 7 Most Popular Nutrition Myths.*

OBJECTIVE 13

Discuss the impact of lifestyle on nutrition.

O Lead a class discussion on the various lifestyle choices that might affect a person's nutrition. Ask any athletes in the class if they could play a sport as well if they had not eaten all day. Ask those in the class who do not get up in the morning early enough to eat breakfast if they think they are missing energy by mid-morning. How can they tell?

O Explain that as a person's lifestyle changes, food habits often change as well. Ask the students to think how their lifestyles might affect nutrition when they leave home. Ask what steps they can take to make certain they maintain a healthy lifestyle today and in the future.

O Show the video *Fad Versus Fit: Your Lifetime Fight Against Fat.*

OBJECTIVE 14

Distinguish between eating disorders.

🄾 Ask the students to research and gather information about eating disorders. Ask them to find out what the characteristics of sufferers often are, what are symptoms of these disorders, how they are cured, and what health risks are associated with each.

🄾 For more information on eating disorders, contact the National Association of Anorexia Nervosa and Associated Disorders (ANAD), P.O. Box 7, Highland Park, IL 60035, phone 708-831-3438.

🄾 Show the video *Eating: Out of Control.*

OBJECTIVE 15

Analyze a daily diet for nutrient content. (Assignment Sheet 4)

🅁 See the general instructions for all Assignment Sheets.

🄾 Provide students with Handout 3. Students can use it as a way of keeping track of the servings they need each day.

OBJECTIVE 16

Develop a personal nutrition and wellness plan. (Assignment Sheet 5)

🅁 See the general instructions for all Assignment Sheets.

🅁 Provide any additional requirements or guidelines for assignment completion.

EVALUATION

Pretest

- Use the unit Written Test for *both* the pretest and posttest. Give the students the pretest before they begin the unit.
- You may wish to use the CIMC publication *Measuring Learning and Competency Gains: The Pretest/Posttest Approach* for instructions and suggestions on giving pretests and using the results. Information for ordering this material is included in the optional resources section.
- Use pretest results to guide individual students in progressing through the unit, doing enrichment work, or moving to the next unit.

Focus Assignment

- Use an informal evaluation of the focus assignments as a diagnostic tool for determining if any students need extra help in reading comprehension or writing skills. Refer these students to their English instructor, Learning Resource Center, or Educational Enhancement Center.

Assignment Sheet

- Evaluate students on Assignment Sheet activities. Students must repeat an Assignment Sheet until they have mastered the activity.

- Complete each student's Competency Profile.

Skill Test

- Explain to the students that they will be asked to demonstrate the procedures on the Job Sheets as a skills test.

- Describe the rating scale used on the skills test.

- Reteach and retest as necessary.

- Complete each student's Competency Profile.

Posttest

- After they have completed the unit, give students the Written Test again.

- Explain to the students that they will be asked to demonstrate on the Written Test actions listed in the specific objectives.

- You may wish to use the CIMC publication *Measuring Learning and Competency Gains: The Pretest/Posttest Approach* for instructions and suggestions on giving posttests and using the results. Information for ordering this material is included in the optional resources section.

- Reteach and retest as necessary to meet individual student needs and state standards for student learning and competency gains.

- Complete the appropriate sections of the Competency Profiles.

- Review individual and group performance to evaluate teaching effectiveness. Adjust scope, sequence, or instructional methods for additional lessons as required.

REQUIRED RESOURCES

The items marked with an asterisk are included in the Instructor's Resource Package.

Publications

- "Nutrition Facts." Handout 1.*

OPTIONAL RESOURCES

The items marked with an asterisk are included in the Instructor's Resource Package.

Publications

- *Focus on Food Labeling*. An *FDA Consumer* Special Report. Rockville, MD: Food and Drug Administration, U.S. Public Health Service, Department of Health and Human Services, 1993.
- *Measuring Learning and Competency Gains: The Pretest/Posttest Approach*. Stillwater, OK: CIMC, Oklahoma Department of Vocational and Technical Education, 1992. For ordering information, call (800) 522-5810.
- "Nutrition and Cognitive Development in Children." Handout 2.*
- "Servings Pyramid." Handout 3.*
- *Statement on The Link Between Nutrition and Cognitive Development in Children*. Available from Tufts University, 11 Curtis Avenue, Medford, MA 02155, phone (617) 627-3956, FAX (617) 627-3020.

Videos

- *Break Your Behavior Chains*. National Health Video, Inc., 1990. Available from National Health Video, Inc., 12021 Wilshire Blvd., Suite 550, Los Angeles, CA 90025, phone (800) 543-6803, FAX (310) 476-0503. Also available from Cambridge Educational, P.O. Box 2153, Charleston, WV 25328-2153, phone (800) 468-4227, FAX (304) 744-9351.
- *Eating: Out of Control*. Cambridge Research Group, Ltd., 1989. Available from Cambridge Educational, P.O. Box 2153, Charleston, WV 25328-2153, phone (800) 468-4227, FAX (304) 744-9351.
- *Fad Versus Fit: Your Lifetime Fight Against Fat*. Cambridge Research Group, Ltd., 1992. Available from Cambridge Educational, P.O. Box 2153, Charleston, WV 25328-2153, phone (800) 468-4227, FAX (304) 744-9351.

- *How to Read the New Food Label.* National Health Video, Inc., 1993. Available from National Health Video, Inc., 12021 Wilshire Blvd., Suite 550, Los Angeles, CA 90025, phone (800) 543-6803, FAX (310) 476-0503. Also available from Cambridge Educational, P.O. Box 2153, Charleston, WV 25328-2153, phone (800) 468-4227, FAX (304) 744-9351.

- *Nutrition in the Fast Lane.* Creative Educational Video, 1993. Also available from the CIMC, phone (800) 654-4502, FAX 1-405-743-5154.

- *Smart Supermarket Shopping with the New Food Label.* National Health Video, Inc., 1994. Available from National Health Video, Inc., 12021 Wilshire Blvd., Suite 550, Los Angeles, CA 90025, phone (800) 543-6803, FAX (310) 476-0503. Also available from Cambridge Educational, P.O. Box 2153, Charleston, WV 25328-2153, phone (800) 468-4227, FAX (304) 744-9351.

- *The Complete Guide to Nutrition Food Labels: The Inside Story of What's Inside.* Cambridge Research Group, Ltd., 1994. Available from Cambridge Educational, P.O. Box 2153, Charleston, WV 25328-2153, phone (800) 468-4227, FAX (304) 744-9351.

- *The Food Guide Pyramid.* Cambridge Educational, P.O. Box 2153, Charleston, WV 25328-2153, phone (800) 468-4227, FAX (304) 744-9351.

- *The 7 Most Popular Nutrition Myths.* National Health Video, Inc., 1992. Available from National Health Video, Inc., 12021 Wilshire Blvd., Suite 550, Los Angeles, CA 90025, phone (800) 543-6803, FAX (310) 476-0503. Also available from Cambridge Educational, P.O. Box 2153, Charleston, WV 25328-2153, phone (800) 468-4227, FAX (304) 744-9351.

- *Women and Nutrition.* National Health Video, Inc., 1993. Available from National Health Video, Inc., 12021 Wilshire Blvd., Suite 550, Los Angeles, CA 90025, phone (800) 543-6803, FAX (310) 476-0503. Also available from Cambridge Educational, P.O. Box 2153, Charleston, WV 25328-2153, phone (800) 468-4227, FAX (304) 744-9351.

UNIT REFERENCES

Publications

- *Adult and Family Living*. Stillwater, OK: CIMC, Oklahoma Department of Vocational and Technical Education, 1990.

- *Dietary Guidelines for Americans* (Home and Garden Bulletin No. 232). U.S. Department of Agriculture, U.S. Department of Health and Human Services, 1990.

- Duyff, Roberta et al. *Modern Meals*. Mission Hills, CA: McGraw-Hill, 1990.

- *Focus on Food Labeling*. An *FDA Consumer* Special Report. Rockville, MD.: Food and Drug Administration, U.S. Public Health Service, Department of Health and Human Services, 1993.

- *Foundations for Living, Volume II*. Stillwater, OK: CIMC, Oklahoma Department of Vocational and Technical Education, 1991.

- Kowtaluk, Helen. *Discovering Food*. Mission Hills, CA: Glencoe, 1992.

- Kowtaluk, Helen and Alice O. Kopan. *Food for Today*. Mission Hills, CA: Glencoe, 1990.

- Largen, Velda and Deborah Bence. *Guide to Good Food*. South Holland, IL: The Goodheart-Willcox Company, Inc., 1992.

- Medved, Eva. *The World of Food*. Englewood Cliffs, NJ: Prentice Hall, 1990.

- *Nutrition: Fiction & Fact*. Salisbury, MD: Perdue Farms Incorporated, 1993.

- *Statement on The Link Between Nutrition and Cognitive Development in Children*. Medford, MA: Center on Hunger, Poverty and Nutrition Policy, Tufts University School of Nutrition, 1994.

- *The Food Guide Pyramid* (Home and Garden Bulletin No. 252). Washington, D.C.: United States Department of Agriculture, Human Nutrition Information Service, 1992.

ASSIGNMENT SHEETS

OBJECTIVE 7

Assignment Sheet 1

Each student's answers will vary, based on the foods chosen. Answers should include the following:

- Definition of serving size for each item
- Number of servings of each item
- Ingredients of each item
- Number of calories in one serving of each item
- Percentage of a 2000-calorie daily diet accounted for by each item's calories
- Number of calories from fat for each item
- Percentage of each item's total calories from fat
- The Percent Daily Values of the nutrients in each item
- Explanation of the good nutritional choice

OBJECTIVE 9

Assignment Sheet 2

Each student's findings will vary. Evaluate spelling and grammar usage, as well as the appropriate application of unit and resource information. In addition to your requirements, evaluate each student's report on its coverage of at least the following:

- The role of the Dietary Guidelines for Americans in promoting nutrition and wellness
- How the Food Guide Pyramid and the new food label help put the Dietary Guidelines into action
- A current research project or current issue that is looking at new information and the relationship between nutrition and wellness
- A list of references used to write the report

OBJECTIVE 11

Assignment Sheet 3

Evaluate each student's work according to the following guidelines:

- Has the student identified a special diet or nutritional situation?
- Is a copy of the recipe attached?
- Has the student modified the recipe to make it healthier for someone following the special diet?
- Is a copy of the modified recipe attached?
- Did the student state the modifications made and explain how those changes made the recipe healthier?

OBJECTIVE 15

Assignment Sheet 4

Evaluate each student's work for the following:

Part 1

- A record of all of the foods eaten for one day (on the form provided)

- Totals for each column (on the form provided)

Part 2

- The total number of calories consumed that day, based on a 2000-calorie diet

- The number of calories from fat and the percentage of the day's total calories that came from fat

- The amounts of nutrients consumed, in terms of milligrams (mg), grams (g), and Percent Daily Values

- An evaluation of the daily diet which answers the following questions:

    - ☐ How many calories were consumed above or below 2000 calories?

    - ☐ For what foods or food items was the student unable to find nutrition information? For those items, what substitutes did the student use?

☐ How well did the student do in limiting fat according to the recommendation in the Dietary Guidelines for Americans? Please explain.

☐ Of which nutrients did the student consume more than needed? Of which did the student consume less than needed? For those nutrients that the student did not eat enough of, what could have been eaten to make up the difference?

☐ What steps will the student take tomorrow to improve his or her diet?

OBJECTIVE 16

Assignment Sheet 5

In addition to your own requirements, evaluate each student's plan for its inclusion of the following minimum items:

- Personal nutrition goals, including deadlines for reaching them
- Ways to achieve personal goals
- How the student will evaluate his or her progress
- Resources used to design the plan
- Personal fitness goals for added wellness
- How the student will change his/her food choices to realize the plan

WRITTEN TEST

OBJECTIVE 1

1. Low calcium intake
2. It helps maintain bone health and helps slow the rate of bone loss later in life.
3. High levels can raise blood pressure.
4. Diets high in fat
5. Diets low in saturated fat and cholesterol; diets rich in fruits, vegetables, and grain products that contain fiber

OBJECTIVE 2

1. Eat a variety of foods
2. Maintain healthy weight
3. Choose a diet low in fat, saturated fat, and cholesterol
4. Choose a diet with plenty of vegetables, fruits, and grain products
5. Use salt and sodium only in moderation

OBJECTIVE 3

1. Americans should limit fat in their diets to 30% of calories.
2. Sources of additional fat are your choice: choose foods from the food groups that are higher in fat, use fat in cooking, or use fat at the table.

OBJECTIVE 4

1. The five major food groups
2. They go down
3. They go up
4. Eat a variety of foods each day.

OBJECTIVE 5

1. C
2. A
3. B
4. D
5. F

OBJECTIVE 6

Any one (1) from each list:

Bread, Cereal, Rice, and Pasta

- 1 slice of bread
- 1 ounce of ready-to-eat cereal
- 1/2 cup cooked cereal, rice, or pasta

Vegetables

- 1 cup raw leafy vegetables
- 1/2 cup other vegetables, cooked or chopped raw
- 3/4 cup vegetable juice

Fruit

- 1 medium apple, banana, orange
- 1/2 cup chopped, cooked, or canned fruit
- 3/4 cup fruit juice

Milk, Yogurt, and Cheese

- 1 cup of milk or yogurt
- 1-1/2 ounces of natural cheese
- 2 ounces of processed cheese

Meat, Poultry, Fish, Dry Beans, Eggs, and Nuts

- 2-3 ounces of cooked lean meat, poultry, or fish
- 1/2 cup cooked dry beans, 1 egg, or 2 tablespoons of peanut butter count as 1 ounce of lean meat

OBJECTIVE 7

Evaluated on Assignment Sheet 1.

OBJECTIVE 8

1. B
2. D
3. B
4. C
5. A
6. E
7. C
8. E
9. A
10. C
11. D

OBJECTIVE 9

Evaluated on Assignment Sheet 2.

OBJECTIVE 10

1. egg substitutes
2. two egg whites (in many instances)
3. plain, unflavored yogurt
4. milk
5. dry cottage cheese
6. cooking oil
7. whole-grain flour
8. all-vegetable shortening or margarine

OBJECTIVE 11

Evaluated on Assignment Sheet 3.

OBJECTIVE 12

2, 3, 5, 7, 9, 10, 12, 14, 15

OBJECTIVE 13

1. By people around you and by your lifestyle
2. Your family
3. Financial, time, and energy limitations
4. They may have the money to buy a variety of food, but may have less time and/or energy to prepare the food.
5. It introduces people to a wider variety of foods and broadens food preferences.

OBJECTIVE 14	1. A 2. B 3. A 4. B 5. A 6. B 7. A
OBJECTIVE 15	**Evaluated on Assignment Sheet 4.**
OBJECTIVE 16	**Evaluated on Assignment Sheet 5.**

CIMC
TEST CODE SHEET

VOCATIONAL PROGRAM (BOOK TITLE) *Food Science and Personal Nutrition*

UNIT NUMBER AND TITLE — 7 — **Making Healthy Food Choices**

TOTAL NUMBER OF TEST QUESTIONS 72

TOTAL NUMBER OF BASIC SKILL QUESTIONS 7

OBJECTIVE NUMBER	TEST QUESTION NUMBER(S)	BASIC SKILL CODE(S)
1	1-5	S
2	1-5	X
3	1-2	W,S
4	1-4	X
5	1-5	X
6	1-5	X
7	Evaluated on AS 1	
8	1-11	X
9	Evaluated on AS 2	
10	1-8	X
11	Evaluated on AS 3	
12	1-15	X
13	1-5	X
14	1-7	X
15	Evaluated on AS 4	
16	Evaluated on AS 5	

INSTRUCTOR'S GUIDE

DEVELOPING CONSUMER SKILLS

8

Required Activities and Resources (R)

These are fully integrated components of this CIMC curriculum. They are usually packaged in or with the curriculum and are essential in meeting the learning objectives. To individualize this unit, use the LAP Sheet supplied in your resources.

- Reproducible Handouts and Transparency Masters are included in the Instructor's Resource Package. Handouts should be copied for all students. Transparency Masters should be used to make overhead transparencies for use during instruction. A small copy of each Transparency Master appears in the student's Information Sheets.
- Non-reproducible resources are included in the student's curriculum.

Optional Activities and Resources (O)

These are suggested high-interest activities to help deliver learning objectives to students or to let students achieve objectives in an applied context. Select as many as you wish to use. Some activities use extra resources for further information about unit content. You can make them available in the classroom for in-depth study or optional activities, but their use is not required for meeting CIMC unit objectives.

FOCUS ASSIGNMENTS

Prereading

R Have students read Handout 1, "Milestones in U.S. Food Labeling."

Writing

R Ask students to write a short paragraph about food labeling.

GENERAL INSTRUCTIONS

Assignment Sheets

R Review the directions and any specific guidelines.

R Make certain that any needed materials from the Instructor's Resource Package are available.

R Have the students complete the Assignment Sheet. Evaluate each student's performance and provide reteaching and retesting as necessary. Have the students repeat the Assignment Sheet until they achieve mastery.

R Complete each student's Competency Profile.

O Have the students volunteer to read aloud the directions and any special guidelines.

O Return the completed Assignment Sheets to the students so that they may use them for later reference if needed.

Job Sheets

R Review the introduction and evaluation criteria for the Job Sheet. Remind the students that they should not fill in the blanks in the Yes/No columns.

R Review and explain all general guidelines, safety cautions, and warnings.

R Make sure that all tools, equipment, and supplies are available.

R Demonstrate each of the procedures outlined in the Job Sheet.

R Allow the students to practice the Job Sheet skills before skills testing. Coach, correct, and supervise as necessary.

R Have the students complete the Job Sheet. Evaluate each student's performance and provide remediation as necessary. Have the students repeat the Job Sheet until they achieve mastery.

R Complete each student's Competency Profile.

R Return the completed Job Sheets to the students so that they may use them for later reference if needed.

O Have the students volunteer to read aloud the job guidelines, cautions, and warnings.

LAP Sheets

The LAP Sheets are an optional component that can be used to individualize instruction. The following instructions should be followed only if you are using the LAP Sheets.

R Explain the specific procedures to be followed to the students before they begin using the LAP Sheet. Be sure that each student understands the procedures for using the LAP Sheet.

R If you want the student to complete any of the assignments on the LAP Sheet that are labeled optional, assign these to the student. Be sure to provide any needed resources.

OBJECTIVE 1

Classify information provided to consumers.

R Discuss with the class how and when the various open dating information is used.

EXAMPLE: Expiration date appears on yeast and baby formula, freshness date is used on bread and baked goods, pack date is given on canned foods, and pull date is used on dairy products and cold cuts.

O Hand out and discuss the information provided in *An Introduction to the New Food Label.*

O Remind the students of the importance of checking food products' dates periodically. Suggest the students check their refrigerators at home or, if applicable, the home economics laboratory refrigerators. Outdated food products should be discarded as necessary.

OBJECTIVE 2

Interpret FDA regulations about the descriptive words used to label nutrient content. (Assignment Sheet 1)

R See the general instructions for all Assignment Sheets.

OBJECTIVE 3

List factors to consider in comparing food products.

O Ask a grocery store manager to either visit the class or give a tour of his or her store with the class. Have the manager point out foods that promote a healthy life-style and those which are the most economical choices.

O As a class activity, compare samples of leading brands and house brands (store vs. name brands).

OBJECTIVE 4

Identify sensory characteristics used to evaluate food quality.

O Provide the class with a variety of food items to sample that represent the different characteristics that can be used to evaluate food quality.

OBJECTIVE 5

Locate taste receptors. (Assignment Sheet 2)

R See the general instructions for all Assignment Sheets.

O Provide the students with the required materials to complete this assignment in class.

O Instruct the students to conduct experiments using their knowledge of sensory testing to design and carry out taste-testing experiments. There are various ways taste-testing experiments can be conducted. Ask the students to work in groups to prepare and design their experiments, prepare questions, and submit the proposed taste-tests to the instructor. Once the experiments are approved and supplies are available, have each group proceed with their taste-tests with the rest of the class and follow-up with reports of their findings.

OBJECTIVE 6

Calculate the unit price of food items. (Assignment Sheet 3)

R See the general instructions for all Assignment Sheets.

O Provide 3-5 different brands of any one kind of food. Have the students work in groups to determine the unit price of each brand. Next, have the students conduct a "taste test" to determine if the lower-priced foods taste as appetizing as the higher-priced foods. Ask the students if it is sometimes worth more money to get a higher product quality.

OBJECTIVE 7

Compare food products. (Assignment Sheet 4)

R See the general instructions for all Assignment Sheets.

O Provide the class with a variety of food products and their prices for use in their comparisons. Have the students complete this assignment in class and review their findings.

O Provide the students with the pamphlet *How to Read the New Food Label*. Review and discuss the material presented.

OBJECTIVE 8

List guidelines for purchasing foods.

R Show the video *Grocery Shopping Survival.* Remind students to write the guidelines in their *Student Workbook.* After the video, review students' work as a class discussion before moving on. They should have written the following guidelines:

Before shopping:

☐ Eat something nutritious to avoid shopping while hungry.

☐ Look at what is already on hand.

☐ Think about the meals that are to be made.

☐ Write a list of what needs to be purchased.

At the store:

☐ Choose those foods lower in fat and sodium.

☐ Compare prices of different sizes and brands.

☐ Read nutrition labels.

☐ Stick to purchasing items on the shopping list.

☐ Try to buy just the amount needed or have space to store.

☐ Use coupons for the things usually used or needed.

O Ask the students, "Are you a smart shopper?" After a brief class discussion, have the students complete Handout 2. Discuss their results.

O Lead a class discussion on how to prepare a grocery shopping list, and how to use advertisements and coupons to save time and money.

O Invite the vocational agriculture instructor, the County Extension Agent, or a school meat judging team member to visit the class and discuss guidelines for shopping for meats.

O For families with limited financial resources, food selections must have high nutrient/calorie ratios. Lead a class discussion on why this would be true. Explain that low nutrient-density foods add costs and calories to a diet. Give examples of healthy, nutrient-dense foods.

OBJECTIVE 9

Identify cost-cutting strategies when purchasing and preparing foods.

O Discuss with the class how consumers can use product coupons and store sales to save money when buying groceries. Ask the students how using coupons would affect a product's unit price.

O Divide the class into several small groups and instruct the groups to plan meals with limited budgets.

O Have the students make and prepare master mixes.

O Discuss with the class how using coupons and newspaper advertisements can save money while shopping.

OBJECTIVE 10

Design a strategy for grocery shopping. (Assignment Sheet 5)

R See the general instructions for all Assignment Sheets.

O Give the students a budget from which their menus are to be planned. Encourage them to keep the budget in mind when planning their shopping strategies. The students may be asked to list prices for each of the items to be purchased, and include any coupons or sales flyers that would allow them to "purchase" the items at a reduced cost.

OBJECTIVE 11

State strategies for making healthy choices while dining out.

R Show the video *Nutrition in the Fast Lane*. Remind students to write the strategies in their *Student Workbook*. After the video, review students' work as a class discussion before moving on. They should have written as many as possible of the following strategies:

- Ask for low calorie dressings.
- Ask for whole wheat bread.
- Ask for a take-home bag instead of eating everything.
- Ask for substitutions.

  EXAMPLE: A green vegetable instead of French fries
- Avoid fried foods.
- Balance eating a variety of foods without getting too much fat, saturated fat, cholesterol, sugars, sodium or alcohol.

☐ Choose cooking methods that do not use fat.

EXAMPLE: Stir-frying, broiling, baking, poaching, steaming, roasting

☐ Choose low salt and low fat foods.

☐ Choose lower calorie foods.

☐ Eat in moderation.

☐ Eat a variety of foods from each of the food groups.

☐ Include milk in the diet each day.

☑ **NOTE:** Choose low fat or skim milk to lower fat intake.

☐ Limit the extras such as gravies, sauces, and butter or margarine.

☐ Limit sugar intake.

☐ Order small portions; request the mini plate or lite plate if available.

☐ Use mustard in place of mayonnaise or ketchup.

O Use *Eating Better When Eating Out Using the Dietary Guidelines* to lead a discussion on how to make wise choices when ordering from a menu.

O Provide examples of restaurant menus for the class to review. Demonstrate how to order a nutritionally balanced meal, then ask pairs of students to practice ordering healthy meals from menus.

OBJECTIVE 12 **Profile healthy choice alternatives for menu items. (Assignment Sheet 6)**

R See the general instructions for all Assignment Sheets.

O Provide the students with copies of restaurant menus to use for assignment completion.

OBJECTIVE 13

Match consumer protection and information agencies to their descriptions.

- O Inform the students that it is important to know where to go for accurate answers about food products and their safety. Experts and trained professional in the field of food and nutrition are available to answer questions. Instruct the students to write the various agencies requesting information on consumer protection.

  ☑ **NOTE:** Provide the students with the following addresses: Consumer Product Safety Commission, Washington, D.C. 20207; Food and Drug Administration, 5600 Fishers Lane, Room 13-82, Rockville, Md 20857; United States Department of Agriculture, Washington, D.C. 20250.

OBJECTIVE 14

Design a nutrition education campaign. (Assignment Sheet 7)

- R See the general instructions for all Assignment Sheets.
- O Provide the students with additional guidelines and/or requirements for assignment completion.
- O Remind students to use computers to design brochures, newsletters, etc., if available.
- O Have the students adapt their campaigns for presentation to high school students, elementary school students, or others.

EVALUATION

Pretest

- Use the unit Written Test for *both* the pretest and posttest. Give the students the pretest before they begin the unit.
- You may wish to use the CIMC publication *Measuring Learning and Competency Gains: The Pretest/Posttest Approach* for instructions and suggestions on giving pretests and using the results. Information for ordering this material is included in the optional resources section.
- Use pretest results to guide individual students in progressing through the unit, doing enrichment work, or moving to the next unit.

Focus Assignment

- Use an informal evaluation of the focus assignments as a diagnostic tool for determining if any students need extra help in reading comprehension or writing skills. Refer these students to their English instructor, Learning Resource Center, or Educational Enhancement Center.

Assignment Sheet

- Evaluate students on Assignment Sheet activities. Students must repeat an Assignment Sheet until they have mastered the activity.

- Complete each student's Competency Profile.

Skill Test

- Explain to the students that they will be asked to demonstrate the procedures on the Job Sheets as a skills test.

- Describe the rating scale used on the skills test.

- Reteach and retest as necessary.

- Complete each student's Competency Profile.

Posttest

- After they have completed the unit, give students the Written Test again.

- Explain to the students that they will be asked to demonstrate on the Written Test actions listed in the specific objectives.

- You may wish to use the CIMC publication *Measuring Learning and Competency Gains: The Pretest/Posttest Approach* for instructions and suggestions on giving posttests and using the results. Information for ordering this material is included in the optional resources section.

- Reteach and retest as necessary to meet individual student needs and state standards for student learning and competency gains.

- Complete the appropriate sections of the Competency Profiles.

- Review individual and group performance to evaluate teaching effectiveness. Adjust scope, sequence, or instructional methods for additional lessons as required.

REQUIRED RESOURCES

The items marked with an asterisk are included in the Instructor's Resource Package.

Publications

- "Milestones in U.S. Food Labeling." Handout 1.*

Videos

- *Nutrition in the Fast Lane.* Creative Educational Video, 1993. Available from the CIMC. (Must be purchased separately.)
- *Grocery Shopping Survival.* Creative Educational Video, 1993. Available from the CIMC. (Must be purchased separately.)

OPTIONAL RESOURCES

The items marked with an asterisk are included in the Instructor's Resource Package.

Publications

- *An Introduction to the New Food Label.* DHHS Publication No. (FDA) 94-2271. Washington, D.C.: United States Department of Agriculture, Food Safety and Inspection Service, 1993.
- "Are You A Smart Shopper?" Handout 2.*
- *Eating Better When Eating Out Using the Dietary Guidelines.* Home and Garden Bulletin No. 232-11. Washington, D.C.: United States Department of Agriculture, Human Nutrition Information Service, 1989.
- *How to Read the New Food Label.* This pamphlet may be ordered from the American Heart Association, National Center, 7272 Greenville Avenue, Dallas, TX 75231-4596. Request AHA 51-1052 (CP).
- *Measuring Learning and Competency Gains: The Pretest/Posttest Approach.* Stillwater, OK: CIMC, Oklahoma Department of Vocational and Technical Education, 1992. For ordering information call 800-522-5810.

UNIT REFERENCES

Publications

- *Adult and Family Living.* Stillwater, Oklahoma: Oklahoma Department of Vocational and Technical Education, Curriculum and Instructional Materials Center, 1990.

- *An Introduction to the New Food Label.* Food and Drug Administration, Food Safety and Inspection Service, DHHS Pub. No. (FDA) 94-2271, Oct. 1993.
- Duyff, Hasler, and Ohl. *Modern Meals.* Oklahoma City, Oklahoma: McGraw-Hill, 1990.
- *Eating Better When Eating Out Using the Dietary Guidelines.* Home and Garden Bulletin No. 232-11. Washington, D.C.: United States Department of Agriculture, Human Nutrition Information Service, 1989.
- *Focus on Food Labeling.* An *FDA Consumer* Special Report. Rockville, MD.: Food and Drug Administration, U.S. Public Health Service, Department of Health and Human Services, 1993.
- *Foundations for Living, Volume II.* Stillwater, Oklahoma: Oklahoma Department of Vocational and Technical Education, Curriculum and Instructional Materials Center, 1991.
- Largen, Velda L. and Deborah L. Bence. *Guide to Good Food.* South Holland, Illinois: The Goodheart-Willcox Company, Inc., 1992.
- *Making Healthy Food Choices.* Home and Garden Bulletin No. 250. Washington, D.C.: United States Department of Agriculture, Human Nutrition Information Service, February 1993.
- Medved, Eva. *The World of Food.* Englewood Cliffs, New Jersey: Prentice Hall, 1990.
- Mehas, Kay and Sharon Rodgers. *Food Science and You.* Mission Hills, California: Glencoe, 1989.
- *Shopping for Food and Making Meals in Minutes Using the Dietary Guidelines.* Home and Garden Bulletin No. 232-10. Washington, D.C.: United States Department of Agriculture, Human Nutrition Information Service.
- *The World of Food, Teacher's Resource Book.* Englewood Cliffs, New Jersey: Prentice Hall, 1990.
- Vernon, Alice. *Foods.* St. Paul, Minnesota: EMC, 1988.

Videos

- *Grocery Shopping Survival.* Lubbock, Texas: Creative Educational Video, 1993.
- *Nutrition in the Fast Lane.* Lubbock, Texas: Creative Educational Video, 1993.

ASSIGNMENT SHEETS

OBJECTIVE 2

Assignment Sheet 1

1. The problem of misleading nutrition claims and help in reestablishing the credibility of the food label.
2. The product must be either absolutely free of the nutrient in question or, if the nutrient is in the food, the amount must be dietetically trivial or physiologically insignificant.
3. A person can eat a large amount of the food without exceeding the Daily Value for the nutrient.
4. Sodium
5. The food has less that 10 g of fat, less than 4g of saturated fat, and less than 95 milligrams of cholesterol per serving and per 100 g.
6. "Extra lean"
7. The food contains 20 percent or more of the Daily Value for that nutrient in a serving.
8. A serving contains 10 to 19 percent of the Daily value for the nutrient.
9. "Reduced," "less," "fewer," "more," or "light."
10. At least 10 percent more of the Daily Value for a particular nutrient than the reference food that it resembles.
11. The food has at least 50 percent less sodium that a reference food.
12. At least two different foods from at least two of four specified food groups.
13. Less than 0.5 g of sugar per serving.
14. Less than 0.5 g of fat per serving.

15. Less than 2 mg of cholesterol and 2 g or less of saturated fat per serving.

16. 140 mg or less per serving and, if the serving is 30 g or less or 2 tablespoons or less, per 50 g of the food.

17. 5 g or more per serving.

18. If the food's nutrient content meets the definition for appropriate nutrient content descriptors that are implied by the claim.

19. Only on a food that is raw, has never been frozen or heated, and contains no preservatives.

20. If the food is low in fat and saturated fat and a serving does not contain more than 480 mg of sodium or more than 60 mg of cholesterol.

OBJECTIVE 5

Assignment Sheet 2

Answers will vary, but each student should explain in writing where the taste buds on the tongue sensed the flavors and how the student responded to each flavor.

Humans can only taste four flavors. The tip of the tongue is sensitive to sweet and salty. The taste buds for sour are along the sides. The back of the tongue responds to bitter flavors.

OBJECTIVE 6

Assignment Sheet 3

	BRAND	SIZE (oz.)	PRICE ($)	UNIT PRICE (¢ per oz.)	BEST PRICE (☑)
1.	Milk A	1 gal (128 oz.)	$ 3.89	3.4 ¢ per oz	☑
	Milk B	1/2 gal (64 oz.)	$ 2.09	3.3 ¢ per oz	
2.	Bread A	24 oz. loaf	$ 1.29	5.4 ¢ per oz	☑
	Bread B	16 oz. loaf	$ 1.19	7.4 ¢ per oz	
3.	Sliced peaches A	16 oz. can	$ .89	5.6 ¢ per oz	☑
	Sliced peaches B	8 oz. can	$ .59	7.4 ¢ per oz	
4.	Peanut butter A	18 oz. jar	$ 1.89	10.5 ¢ per oz	
	Peanut butter B	36 oz. jar	$ 3.79	10.5 ¢ per oz	
5.	Applesauce A	24 oz. jar	$ 1.59	6.6 ¢ per oz	☑
	Applesauce B	24 oz. 6-pack cups	$ 2.19	9.1 ¢ per oz	

Answers for 6-10 will vary. Check student's calculations.

OBJECTIVE 7

Assignment Sheet 4

All answers will vary, but each student should visit a local grocery store or food market and choose two varieties of two different food products. Based on the student's findings, the following questions should be answered:

Food product, brand, intended use, nutrition facts data, open dating information, quality, quantity needed, and unit price. The students should then determine which food product is the better purchase for the various situations given. An explanation of the answer should be given.

OBJECTIVE 11

Assignment Sheet 5

All answers will vary, but each student should plan a menu for one day, prepare a shopping list for items that would be needed, and explain what shopping strategies would be used to purchase the listed items. Answer might include such information as:

- Check to see what foods are on hand
- Plan meals to include a variety of foods from each of the major food groups

- Consider how much money is available to spend on food
- Read ingredient labels, watching for ingredients that provide fat, sugars, and sodium
- Use nutrition labels to help select food products
- Use open dating information to assure quality and freshness
- Use unit pricing to compare prices

OBJECTIVE 13

Assignment Sheet 6

Answers will vary, but each student should complete the following:

- Obtain a take-out menu or menu copy from a restaurant.
- Make menu selections.
- Use the information presented in the unit and reading materials to profile healthy choice alternatives for menu items.
- Put together three sample meals suggesting healthy alternatives to ingredients, menu items, and/or methods of preparation.
- Identify foods that could be served which are lower in calories, fat, sugars, and/or sodium.
- Attach the restaurant menu used for the instructor's reference.

OBJECTIVE 15

Assignment Sheet 7

Each campaign will be different. However, all students must provide the following:

- A defined audience
- An identified campaign objective
- A nutrition or consumer education newsletter, brochure, or poster
- Distribution of information to a specific audience
- An evaluation of the success of the campaign

WRITTEN TEST

OBJECTIVE 1

1. C
2. B
3. A

OBJECTIVE 2

Evaluated on Assignment Sheet 1.

OBJECTIVE 3

Lists should include the following:

- Brand
- Intended use
- Nutrition facts data
- Open dating information
- Quality
- Quantity needed
- Unit price

OBJECTIVE 4

1, 3, 4, 6, 7

OBJECTIVE 5

Evaluated on Assignment Sheet 2.

OBJECTIVE 6

Evaluated on Assignment Sheet 3.

OBJECTIVE 7

Evaluated on Assignment Sheet 4.

OBJECTIVE 8

Answers should include the following:

Before shopping:

- Eat something nutritious to avoid shopping while hungry
- Look at what is already on hand
- Think about the meals that are to be made
- Write a list of what needs to be purchased

At the store:

- Choose those foods lower in fat and sodium
- Compare prices of different sizes and brands
- Read nutrition labels
- Stick to purchasing items on the shopping list
- Try to buy just the amount needed or have space to store
- Use coupons for the things usually used or needed

OBJECTIVE 9

Answers should include any six (6) of the following:

- Buy store brands and generic items.
- Buy in bulk or volume.
- Plan meals first, then make a shopping list.
- Read product labels.
- Shop store sales.
- Stock up on store specials.
- Use unit pricing to find best buys.
- Use master mixes.
- Use consumer coupons.

OBJECTIVE 10

Evaluated on Assignment Sheet 5.

OBJECTIVE 11

Answers should include any ten (10) of the following:

- Ask for low calorie dressings.
- Ask for whole wheat bread.
- Ask for a take-home bag instead of eating everything.

- Ask for substitutions.
- Avoid fried foods.
- Balance eating a variety of foods without getting too much fat, saturated fat, cholesterol, sugars, sodium or alcohol.
- Choose cooking methods that do not use fat.
- Choose low salt and low fat foods.
- Choose lower calorie foods.
- Eat in moderation.
- Eat a variety of foods from each of the food groups.
- Include milk in the diet each day.
- Limit the extras such as gravies, sauces, and butter or margarine.
- Limit sugar intake.
- Order small portions; request the mini plate or lite plate if available.
- Use mustard in place of mayonnaise or ketchup.

OBJECTIVE 12 **Evaluated on Assignment Sheet 6.**

OBJECTIVE 13

1. C
2. B
3. D
4. A

OBJECTIVE 14 **Evaluated on Assignment Sheet 7.**

CIMC
TEST CODE SHEET

VOCATIONAL PROGRAM (BOOK TITLE) *Food Science and Personal Nutrition*

UNIT NUMBER AND TITLE — 8 — Developing Consumer Skills

TOTAL NUMBER OF TEST QUESTIONS 48

TOTAL NUMBER OF BASIC SKILL QUESTIONS 0

OBJECTIVE NUMBER	TEST QUESTION NUMBER(S)	BASIC SKILL CODE(S)
1	1-3	X
2	Evaluated on AS 1	
3	1-7	X
4	1-8	X
5	Evaluated on AS 2	
6	Evaluated on AS 3	
7	Evaluated on AS 4	
8	1-4; 1-6	X
9	1-6	X
10	Evaluated on AS 5	
11	1-10	X
12	Evaluated on AS 6	
13	1-4	X
14	Evaluated on AS 7	

INSTRUCTOR'S GUIDE

PLANNING HOME-PREPARED MEALS

9

Required Activities and Resources (R)

These are fully integrated components of this CIMC curriculum. They are usually packaged in or with the curriculum and are essential in meeting the learning objectives. To individualize this unit, use the LAP Sheet supplied in your resources.

- Reproducible Handouts and Transparency Masters are included in the Instructor's Resource Package. Handouts should be copied for all students. Transparency Masters should be used to make overhead transparencies for use during instruction. A small copy of each Transparency Master appears in the student's Information Sheets.
- Non-reproducible resources are included in the student's curriculum.

Optional Activities and Resources (O)

These are suggested high-interest activities to help deliver learning objectives to students or to let students achieve objectives in an applied context. Select as many as you wish to use. Some activities use extra resources for further information about unit content. You can make them available in the classroom for in-depth study or optional activities, but their use is not required for meeting CIMC unit objectives.

FOCUS ASSIGNMENTS

Prereading

R Have the students scan their recent shopping lists and receipts for food items.

Writing

R Ask the students to describe their recent decisions about using convenience products. Discuss their trade-offs in class.

GENERAL INSTRUCTIONS

Assignment Sheets

R Review the directions and any specific guidelines.

R Make certain that any needed materials from the Instructor's Resource Package are available.

R Have the students complete the Assignment Sheet. Evaluate each student's performance and provide reteaching and retesting as necessary. Have the students repeat the Assignment Sheet until they achieve mastery.

R Complete each student's Competency Profile.

O Have the students volunteer to read aloud the directions and any special guidelines.

O Return the completed Assignment Sheets to the students so that they may use them for later reference if needed.

Job Sheets

R Review the introduction and evaluation criteria for the Job Sheet. Remind the students that they should not fill in the blanks in the Yes/No columns.

R Review and explain all general guidelines, safety cautions, and warnings.

R Make sure that all tools, equipment, and supplies are available.

R Demonstrate each of the procedures outlined in the Job Sheet.

R Allow the students to practice the Job Sheet skills before skills testing. Coach, correct, and supervise as necessary.

R Have the students complete the Job Sheet. Evaluate each student's performance and provide remediation as necessary. Have the students repeat the Job Sheet until they achieve mastery.

R Complete each student's Competency Profile.

R Return the completed Job Sheets to the students so that they may use them for later reference if needed.

O Have the students volunteer to read aloud the job guidelines, cautions, and warnings.

LAP Sheets

The LAP Sheets are an optional component that can be used to individualize instruction. The following instructions should be followed only if you are using the LAP Sheets.

R Explain the specific procedures to be followed to the students before they begin using the LAP Sheet. Be sure that each student understands the procedures for using the LAP Sheet.

R If you want the student to complete any of the assignments on the LAP Sheet that are labeled optional, assign these to the student. Be sure to provide any needed resources.

OBJECTIVE 1

Discuss factors influencing the choice of convenience or home-prepared foods.

O Provide examples of food labels from convenience foods and from ingredients it would take to prepare the same item at home. Point out the information included on the labels, and discuss the nutritional differences.

OBJECTIVE 2

Compare convenience and home-prepared foods. (Assignment Sheet 1)

R See the general instructions for all Assignment Sheets.

O As a resource for known additives use the *Food Science, Safety & Nutrition* guide from the National Council for Agricultural Education.

O Provide the students with the food products they are to evaluate and have them complete Assignment Sheet 1 as an in-class assignment. The students may either work in groups or on an individual basis.

OBJECTIVE 3

List criteria to consider when planning a menu.

R Lead a class discussion on how one can plan successful menus by wisely using available resources.

O Review how individual needs affect menu planning. Have the students divide into groups to plan meals for the life stages based on the special needs of each stage.

O Present scenarios to the students where they are in "limiting" situations, and ask them to prepare nutritious menus with the limited resources given.

EXAMPLES: A dorm room with no range or oven, an efficiency apartment with only a sink, range, and small refrigerator, the electricity goes out and all that is available for cooking is an outdoor grill.

OBJECTIVE 4

Describe ways to achieve variety in meals.

R Explain to the class that besides being nutritious, it is desirable for food to look and taste good. Planning a meal with variety in mind can help achieve this goal.

O Ask the class to brainstorm a list of items that could be used as garnishes to add color variety to foods and meals.

OBJECTIVE 5

Plan a one-day menu of healthy meals and snacks. (Assignment Sheet 2)

R See the general instructions for all Assignment Sheets.

O Have the students exchange strategies and evaluate them. Ask the students to suggest changes that might increase nutrients, such as starch, fiber, moderate fat, sugars, and sodium.

OBJECTIVE 6

Plan a complete one-meal menu typical of another country, culture, or U.S. region. (Assignment Sheet 3)

R See the general instructions for all Assignment Sheets.

O Have the students exchange and review menus and vote on the one (or more, depending on class resources) they would like to prepare.

OBJECTIVE 7

Investigate food preparation methods in different countries and cultures. (Assignment Sheet 4)

R See the general instructions for all Assignment Sheets.

O Ask for student volunteers to either orally report on or demonstrate food preparation methods which are representative of their family heritage.

OBJECTIVE 8

State strategies for making healthy choices while preparing foods.

O Use *Preparing Foods and Planning Menus Using the Dietary Guidelines* as an additional teaching resource for discussing healthy cooking techniques.

O Ask each student to look in magazines, cookbooks, and/or textbooks to locate a healthy recipe to share with the class. Lead a class discussion on the recipes presented, encouraging student evaluation on each.

O Conduct a classroom experiment. Drain the fat from a sample of cooked meat. Then, pour boiling water over the meat to rinse. Save the water. Refrigerate the water. Ask the student to observe the water with the solidified fat. Discuss the results.

OBJECTIVE 9

Prepare a food item representing another country, culture, or U.S. region. (Job Sheet)

R See the general instructions for all Job Sheets.

O Have the students discuss with the class ethnic fairs or festivals they have attended. Ask them to describe foods that were featured or that they ate.

EVALUATION

Pretest

- Use the unit Written Test for *both* the pretest and posttest. Give the students the pretest before they begin the unit.
- You may wish to use the CIMC publication *Measuring Learning and Competency Gains: The Pretest/Posttest Approach* for instructions and suggestions on giving pretests and using the results. Information for ordering this material is included in the optional resources section.
- Use pretest results to guide individual students in progressing through the unit, doing enrichment work, or moving to the next unit.

Focus Assignment

- Use an informal evaluation of the focus assignments as a diagnostic tool for determining if any students need extra help in reading comprehension or writing skills. Refer these students to their English instructor, Learning Resource Center, or Educational Enhancement Center.

Assignment Sheet

- Evaluate students on Assignment Sheet activities. Students must repeat an Assignment Sheet until they have mastered the activity.
- Complete each student's Competency Profile.

Skill Test

- Explain to the students that they will be asked to demonstrate the procedures on the Job Sheets as a skills test.
- Describe the rating scale used on the skills test.
- Reteach and retest as necessary.
- Complete each student's Competency Profile.

Posttest

- After they have completed the unit, give students the Written Test again.
- Explain to the students that they will be asked to demonstrate on the Written Test actions listed in the specific objectives.
- You may wish to use the CIMC publication *Measuring Learning and Competency Gains: The Pretest/Posttest Approach* for instructions and suggestions on giving posttests and using the results. Information for ordering this material is included in the optional resources section.
- Reteach and retest as necessary to meet individual student needs and state standards for student learning and competency gains.
- Complete the appropriate sections of the Competency Profiles.
- Review individual and group performance to evaluate teaching effectiveness. Adjust scope, sequence, or instructional methods for additional lessons as required.

OPTIONAL RESOURCES

Publications

- *Food Science, Safety & Nutrition.* Alexandria, VA: National Council for Agricultural Education, 1993. To order, write the National Council for Agricultural Education, 5632 Mount Vernon Memorial Highway, P.O. Box 15035, Alexandria, VA 22309-0035, or call (703) 360-8832.
- *The Food Guide Pyramid.* Home and Garden Bulletin No. 252, United States Department of Agriculture, Human Nutrition Information Services, 1992.
- *Measuring Learning and Competency Gains: The Pretest/Posttest Approach.* Stillwater, OK: CIMC, Oklahoma Department of Vocational and Technical Education, 1992. For ordering information call 800-522-5810.
- *Preparing Foods and Planning Menus Using the Dietary Guidelines.* Home and Garden Bulletin No. 232-8, United States Department of Agriculture, Human Nutrition Information Services.

UNIT REFERENCES

- *Adult and Family Living.* Stillwater, Oklahoma: Oklahoma Department of Vocational and Technical Education, Curriculum and Instructional Materials Center, 1990.
- Duyff, Hasler, and Ohl. *Modern Meals.* Oklahoma City, Oklahoma: McGraw-Hill, 1990.
- *Eating for Life.* NIH Publication No. 88-3000, United States Department of Health and Human Services, National Institute of Health, 1988.
- *Foundations for Living, Volume I.* Stillwater, Oklahoma: Oklahoma Department of Vocational and Technical Education, Curriculum and Instructional Materials Center, 1989.
- *Foundations for Living, Volume II.* Stillwater, Oklahoma: Oklahoma Department of Vocational and Technical Education, Curriculum and Instructional Materials Center, 1991.
- Kowtaluk, Helen. *Discovering Nutrition,* 2nd ed. Encino, California: Glencoe, 1986.

- *Preparing Foods and Planning Menus Using the Dietary Guidelines.* Home and Garden Bulletin No. 232-8, United States Department of Agriculture, Human Nutrition Information Services.

- *Shopping for Food and Making Meals in Minutes Using the Dietary Guidelines.* Home and Garden Bulletin No. 232-10, United States Department of Agriculture, Human Nutrition Information Services.

- *World of Food Teacher's Resource Book.* Englewood Cliffs, New Jersey: Prentice Hall, 1990.

ASSIGNMENT SHEETS

OBJECTIVE 2

Assignment Sheet 1

Answers will vary, but the students should locate and identify three different types of one food product. Answers to the given questions should be used in order to compare the convenience and home-prepared food items.

OBJECTIVE 5

Assignment Sheet 2

Answers will vary.

OBJECTIVE 6

Assignment Sheet 3

Answers will vary, but the students should use the Food Guide Pyramid, textbooks, and library resources to plan a complete one-meal menu representing another country, culture, or U.S. region. The students should include a calculation of the cost of the menu items needed.

OBJECTIVE 7

Assignment Sheet 4

Answers will vary, but the students should use textbooks and library resources to investigate food preparation methods in different countries and cultures. The students should identify a food, a dish prepared with that food, and the preparation methods used next to each country and culture chosen.

WRITTEN TEST

OBJECTIVE 1

Answers may vary but should include the following information:

- **Availability of food** – Foods that are available either seasonally or regionally may determine whether they can be purchased fresh or if a pre-packaged convenience method is all that is currently available.
- **Cost of food** – Consideration of the amount of money budgeted for food may influence whether a food is more economically prepared at home or in a convenience product.
- **Equipment needed for preparation** – Many recipes call for specific equipment, that if not already owned can be a costly investment.
- **Nutritional value of food** – One of the goals of meal planning is to supply adequate nutrition, whichever food choices are made.
- **Quantity of food** – Determining how much of a food is needed for the number of persons to be served can influence food preparation choices.
- **Skills for food preparation** – Learning and using various food-preparation techniques and recipe terms takes practice, time, and patience.
- **Time needed for preparation** – When it comes to saving time in the kitchen, convenience foods have a lot to offer. However, if time is not a crucial factor, home-prepared meals may offer a more nutritious and appealing method of preparation.

OBJECTIVE 2

Evaluated on Assignment Sheet 1.

OBJECTIVE 3

- Individual needs
- Nutritional value of foods served
- Resources available
- Variety

OBJECTIVE 4

Answers may vary but should include the following information:

- **Color** — Variety in color will add interest and nutrients to a meal, while a single color meal may look monotonous; try not to repeat any one color on the same plate; use garnishes or toppings to add color and flavor.

- **Food choices** — Include food from each of the major food groups for a variety of different foods and nutrients.

- **Flavor** — Include foods with both strong and mild flavors, avoiding more than one strong flavor at the same meal; balance sweet and sour flavors. Avoid repeating foods having the same flavor in the same meal.

- **Preparation** — Change the way a food is prepared to add variety.

- **Size and shape** — Contrast size and shape to make a meal more visually appealing; can be accomplished by the preparation method used.

- **Temperature of each item** — Serve cold, hot, and room temperature foods for contrast and appeal; serving foods at their proper temperatures will also make them taste better.

- **Texture of each item served** — Serve foods that are smooth, crunchy, creamy, hard, crisp, or tender to differ the texture.

OBJECTIVE 5

Evaluated on Assignment Sheet 2.

OBJECTIVE 6

Evaluated on Assignment Sheet 3.

OBJECTIVE 7

Evaluated on Assignment Sheet 4.

OBJECTIVE 8

Answers should include any twelve of the following.

- Avoid preparing high-calorie foods.

- Baste with unsalted broth or fruit juice.

- Brown ground meats without added fat; drain and wash off the fat before mixing with other ingredients.

- Choose cooking methods that use little or no added fat.
- Choose lean meat and trim the visible fat from meat.
- Cook vegetables using steam, microwave, or stir-fry cooking methods.
- Increase fiber.
- Limit the amount of salt used in food preparation.
- Limit the "extra" calorie foods.
- Prepare a variety of foods.
- Prepare meat, poultry, or fish without breading or batter.
- Read food labels.
- Remove skin from poultry.
- Substitute healthy alternatives when possible.
- Use low-fat alternatives when possible.

OBJECTIVE 9

Evaluated on the Job Sheet.

CIMC
TEST CODE SHEET

VOCATIONAL PROGRAM (BOOK TITLE) *Food Science and Personal Nutrition*

UNIT NUMBER AND TITLE — 9 — **Planning Home-Prepared Meals**

TOTAL NUMBER OF TEST QUESTIONS 30

TOTAL NUMBER OF BASIC SKILL QUESTIONS 14

OBJECTIVE NUMBER	TEST QUESTION NUMBER(S)	BASIC SKILL CODE(S)
1	1-7	W
2	Evaluated on AS 1	
3	1-4	X
4	1-7	W
5	Evaluated on AS 2	
6	Evaluated on AS 3	
7	Evaluated on AS 4	
8	1-12	X
9	Evaluated on the JS	

INSTRUCTOR'S
GUIDE

SERVING AND DINING ETIQUETTE

10

Required Activities and Resources (R)

These are fully integrated components of this CIMC curriculum. They are usually packaged in or with the curriculum and are essential in meeting the learning objectives. To individualize this unit, use the LAP Sheet supplied in your resources.

- Reproducible Handouts and Transparency Masters are included in the Instructor's Resource Package. Handouts should be copied for all students. Transparency Masters should be used to make overhead transparencies for use during instruction. A small copy of each Transparency Master appears in the student's Information Sheets.
- Non-reproducible resources are included in the student's curriculum.

Optional Activities and Resources (O)

These are suggested high-interest activities to help deliver learning objectives to students or to let students achieve objectives in an applied context. Select as many as you wish to use. Some activities use extra resources for further information about unit content. You can make them available in the classroom for in-depth study or optional activities, but their use is not required for meeting CIMC unit objectives.

FOCUS ASSIGNMENTS

Prereading

R Have the students read about etiquette from books and magazine articles. Suggest some possible resources.

Writing

R Ask the students to answer the questions listed on the Objective Sheet. Discuss their responses in class.

GENERAL INSTRUCTIONS

Assignment Sheets

R Review the directions and any specific guidelines.

R Make certain that any needed materials from the Instructor's Resource Package are available.

R Have the students complete the Assignment Sheet. Evaluate each student's performance and provide reteaching and retesting as necessary. Have the students repeat the Assignment Sheet until they achieve mastery.

R Complete each student's Competency Profile.

O Have the students volunteer to read aloud the directions and any special guidelines.

O Return the completed Assignment Sheets to the students so that they may use them for later reference if needed.

Job Sheets

R Review the introduction and evaluation criteria for the Job Sheet. Remind the students that they should not fill in the blanks in the Yes/No columns.

R Review and explain all general guidelines, safety cautions, and warnings.

R Make sure that all tools, equipment, and supplies are available.

R Demonstrate each of the procedures outlined in the Job Sheet.

R Allow the students to practice the Job Sheet skills before skills testing. Coach, correct, and supervise as necessary.

R Have the students complete the Job Sheet. Evaluate each student's performance and provide remediation as necessary. Have the students repeat the Job Sheet until they achieve mastery.

R Complete each student's Competency Profile.

R Return the completed Job Sheets to the students so that they may use them for later reference if needed.

O Have the students volunteer to read aloud the job guidelines, cautions, and warnings.

LAP Sheets

The LAP Sheets are an optional component that can be used to individualize instruction. The following instructions should be followed only if you are using the LAP Sheets.

R Explain the specific procedures to be followed to the students before they begin using the LAP Sheet. Be sure that each student understands the procedures for using the LAP Sheet.

R If you want the student to complete any of the assignments on the LAP Sheet that are labeled optional, assign these to the student. Be sure to provide any needed resources.

OBJECTIVE 1

Distinguish among styles of meal service.

R Lead a class discussion on each style of meal service in the objective and when it might be best used.

O Have the students make pretty, colorful placemats from either construction paper or fabric. Have the students use originality to decorate the mats. When the mats are finished, have the students donate and distribute them to a local nursing home or child-care facility.

OBJECTIVE 2

Identify types and techniques of table settings.

R Show Transparency Masters 1 and 2.

R Distribute Handout 1 of table setting information.

R Allow the students to practice setting a table before they complete Job Sheet 1.

O Show pictures of actual table settings; identify the types.

OBJECTIVE 3

Set a table. (Job Sheet 1)

R See the general instructions for all Job Sheets.

R Have the students set a table. Have them demonstrate both formal and informal settings.

O Bring paper and cloth napkins to class. Be prepared to teach the students decorative ways to fold napkins for various table settings.

O Give the students sample menus and ask them to set demonstration place settings.

OBJECTIVE 4 **Clear a table. (Job Sheet 2)**

R See the general instructions for all Job Sheets.

R Distribute Handout 2. Demonstrate to the class the proper way to clear a table. Allow the students to practice clearing tables before they complete Job Sheet 2.

R Have the students clear a table using proper procedures.

O Ask the students to observe a waiter or waitress working at an eating establishment. Have them report back to class on what they observed and if proper table-clearing practices were used.

OBJECTIVE 5 **Discuss the relationship of dining etiquette to success in the workplace.**

R Discuss objective information with the class. Lead a discussion on what might be appropriate and/or inappropriate dining mannerisms and how they could affect ones image on the job.

EXAMPLES: Inappropriate – Drinking alcohol at business lunches, ordering the most expensive items just because the company is paying

Appropriate – Thank the person representing the paying company

O Ask students or employers to talk about meal etiquette on the job.

OBJECTIVE 6 **Select from a list guidelines for good table manners.**

R Show the videotape *Fundamental Table Etiquette*. Discuss the video content with the class and how the information included applies to the objective.

O Demonstrate various table manners.

EXAMPLES: Where to place used flatware, how to properly lay a napkin in the lap and on the table after a meal

O Ask the class for good examples of table conversation. What are some poor examples?

OBJECTIVE 7

Identify proper dining etiquette when using formal table settings.

O Provide the students with "case studies" of different situations where a formal table setting might be used. Discuss with the class how the place settings might be arranged and what etiquette guidelines the students should follow in each situation.

OBJECTIVE 8

Complete a list of guidelines for proper restaurant etiquette.

R Show the videotape *Fundamental Restaurant Etiquette.* Instruct the students to "fill in" the objective information as they watch the videotape. Discuss the correct answers that the students should have filled in the blanks.

O Explain that a tip is often included on the bill for larger groups (such as 8 or more people).

O Practice calculating tips as a class activity.

OBJECTIVE 9

Profile meal service and dining etiquette in another country, culture, or United States region. (Assignment Sheet)

R See the general instructions for all Assignment Sheets.

O Refer the students to the report they did, in Unit 1, on the food heritage of another country or U.S. region. It may be suggested that the students use the same country or region already researched and profile their meal service and dining etiquette customs. Remind students to add their completed assignment to the portfolio they started in Unit 1.

O Place a world map on the bulletin board. Ask the students to label the region or country on which they reported, then give a brief oral report on their findings.

O Lead a class discussion asking the students what regional foods they have eaten when traveling in different areas of the country and/or world. Ask for their reaction on how they liked or disliked the differences.

O Encourage the students to be considerate of the table manners used by people from different parts of the world or different United States regions. Table manners may be different yet considered acceptable in their own area.

EVALUATION

Pretest

- Use the unit Written Test for *both* the pretest and posttest. Give the students the pretest before they begin the unit.

- You may wish to use the CIMC publication *Measuring Learning and Competency Gains: The Pretest/Posttest Approach* for instructions and suggestions on giving pretests and using the results. Information for ordering this material is included in the optional resources section.

- Use pretest results to guide individual students in progressing through the unit, doing enrichment work, or moving to the next unit.

Focus Assignment

- Use an informal evaluation of the focus assignments as a diagnostic tool for determining if any students need extra help in reading comprehension or writing skills. Refer these students to their English instructor, Learning Resource Center, or Educational Enhancement Center.

Assignment Sheet

- Evaluate students on Assignment Sheet activities. Students must repeat an Assignment Sheet until they have mastered the activity.

- Complete each student's Competency Profile.

Skill Test

- Explain to the students that they will be asked to demonstrate the procedures on the Job Sheets as a skills test.

- Describe the rating scale used on the skills test.

- Reteach and retest as necessary.

- Complete each student's Competency Profile.

Posttest

- After they have completed the unit, give students the Written Test again.
- Explain to the students that they will be asked to demonstrate on the Written Test actions listed in the specific objectives.
- You may wish to use the CIMC publication *Measuring Learning and Competency Gains: The Pretest/Posttest Approach* for instructions and suggestions on giving posttests and using the results. Information for ordering this material is included in the optional resources section.
- Reteach and retest as necessary to meet individual student needs and state standards for student learning and competency gains.
- Complete the appropriate sections of the Competency Profiles.
- Review individual and group performance to evaluate teaching effectiveness. Adjust scope, sequence, or instructional methods for additional lessons as required.

REQUIRED RESOURCES

The items marked with an asterisk are included in the Instructor's Resource Package.

Publications

- "Basics of Table Settings." Handout 1.*
- "Proper Way to Clear a Table." Handout 2.*

Videos

- *Fundamental Restaurant Etiquette.* Creative Educational Video, Inc., 1994. Available from the CIMC. (Must be purchased separately.)
- *Fundamental Table Etiquette.* Creative Educational Video, Inc., 1994. Available from the CIMC. (Must be purchased separately.)

OPTIONAL RESOURCES

Publications

- *Measuring Learning and Competency Gains: The Pretest/Posttest Approach.* Stillwater, OK: CIMC, Oklahoma Department of Vocational and Technical Education, 1992. For ordering information call 800-522-5810.

UNIT REFERENCES

Publications

- *Adult and Family Living.* Stillwater, Oklahoma: Oklahoma Department of Vocational and Technical Education, Curriculum and Instructional Materials Center, 1990.
- Duyff, Hasler, and Ohl. *Modern Meals.* Oklahoma City, Oklahoma: McGraw-Hill, 1990.
- *Foundations for Living, Volume I.* Stillwater, Oklahoma: Oklahoma Department of Vocational and Technical Education, Curriculum and Instructional Materials Center, 1989.
- Kowtaluk, Helen and Alice Kopan. *Food for Today.* Mission Hills, California: Glencoe, 1990.
- Medved, Eva. *The World of Food.* Englewood Cliffs, New Jersey: Prentice Hall, 1990.
- Vernon, Alice. *Foods.* St. Paul, Minnesota: EMC, 1988.

Videos

- *Fundamental Restaurant Etiquette.* Lubbock, Texas: Creative Educational Video, Inc., 1994.
- *Fundamental Table Etiquette.* Lubbock, Texas: Creative Educational Video, Inc., 1994.

ANSWERS

SERVING AND DINING ETIQUETTE

10

ASSIGNMENT SHEET

OBJECTIVE 10

Assignment Sheet

Profiles will vary, but should include the following information in addition to any other specification given by the instructor.

1. What are typical foods of the chosen area?
2. How are meals served? What special utensils might be common?
3. What style of food service is typical?
4. What group or groups of people influenced the cuisine?
5. What meal patterns are typical of the people in the area?

WRITTEN TEST

OBJECTIVE 1

1. C
2. E
3. D
4. A
5. B

OBJECTIVE 2

2, 5, 6

OBJECTIVE 3

Evaluated on Job Sheet 1.

OBJECTIVE 4

Evaluated on Job Sheet 2.

OBJECTIVE 5

Answers will vary, but the written discussions should include the following points:

- Many business occasions include a meal.
- A persons table manners and dining etiquette say a great deal about a person to other people, including employers and business associates.
- Good manners show consideration and respect for others, and are a reflection of personality and social "know-how."
- Knowing correct table manners can help a person feel and appear more confident, relaxed, and skilled; desirable characteristics an employer often looks for in an employee.

OBJECTIVE 6

1, 5, 6, 7, 8, 10, 11, 12, 17, 18, 19, 21, 22, 23, 24, 26

OBJECTIVE 7

3, 4, 7, 9, 10, 11

OBJECTIVE 8

Arriving at the Restaurant

1. wait for your friends
2. host/hostess
3. host/hostess, spokesperson
4. women, men
5. it is okay to request another chair
6. un-checked coats
7. napkins
8. business women

Ordering the Meal

1. pocketbook
2. when ordering
3. waiter
4. be shared with companions
5. separate
6. inviting company

During the Meal

1. until everyone has been served
2. under the edge of your plate
3. drinking or talking
4. make-up or hair
5. at the left side of plate
6. purses, briefcases, and other bags
7. your own silverware

Following the Meal

1. tip

OBJECTIVE 9

Evaluated on the Assignment Sheet.

CIMC
TEST CODE SHEET

VOCATIONAL PROGRAM (BOOK TITLE) *Food Science and Personal Nutrition*

UNIT NUMBER AND TITLE – 10 – Serving and Dining Etiquette

TOTAL NUMBER OF TEST QUESTIONS 73

TOTAL NUMBER OF BASIC SKILL QUESTIONS 1

OBJECTIVE NUMBER	TEST QUESTION NUMBER(S)	BASIC SKILL CODE(S)
1	1-5	X
2	1-7	X
3	Evaluated on JS 1	
4	Evaluated on JS 2	
5	1	W
6	1-26	X
7	1-11	X
8	1-8; 1-6; 1-8; 1	X
9	Evaluated on the AS	

INSTRUCTOR'S GUIDE

EXPLORING CAREERS

11

Required Activities and Resources (R)

These are fully integrated components of this CIMC curriculum. They are usually packaged in or with the curriculum and are essential in meeting the learning objectives. To individualize this unit, use the LAP Sheet supplied in your resources.

- Reproducible Handouts and Transparency Masters are included in the Instructor's Resource Package. Handouts should be copied for all students. Transparency Masters should be used to make overhead transparencies for use during instruction. A small copy of each Transparency Master appears in the student's Information Sheets.
- Non-reproducible resources are included in the student's curriculum.

Optional Activities and Resources (O)

These are suggested high-interest activities to help deliver learning objectives to students or to let students achieve objectives in an applied context. Select as many as you wish to use. Some activities use extra resources for further information about unit content. You can make them available in the classroom for in-depth study or optional activities, but their use is not required for meeting CIMC unit objectives.

FOCUS ASSIGNMENTS

Prereading

R Have the students read about careers related to food science and nutrition, using textbooks, library materials, or other references.

Writing

R Have the students write a short (one paragraph to one page) summary of the information read.

GENERAL INSTRUCTIONS

Assignment Sheets

R Review the directions and any specific guidelines.

R Make certain that any needed materials from the Instructor's Resource Package are available.

R Have the students complete the Assignment Sheet. Evaluate each student's performance and provide reteaching and retesting as necessary. Have the students repeat the Assignment Sheet until they achieve mastery.

R Complete each student's Competency Profile.

O Have the students volunteer to read aloud the directions and any special guidelines.

O Return the completed Assignment Sheets to the students so that they may use them for later reference if needed.

Job Sheets

R Review the introduction and evaluation criteria for the Job Sheet. Remind the students that they should not fill in the blanks in the Yes/No columns.

R Review and explain all general guidelines, safety cautions, and warnings.

R Make sure that all tools, equipment, and supplies are available.

R Demonstrate each of the procedures outlined in the Job Sheet.

R Allow the students to practice the Job Sheet skills before skills testing. Coach, correct, and supervise as necessary.

R Have the students complete the Job Sheet. Evaluate each student's performance and provide remediation as necessary. Have the students repeat the Job Sheet until they achieve mastery.

R Complete each student's Competency Profile.

R Return the completed Job Sheets to the students so that they may use them for later reference if needed.

O Have the students volunteer to read aloud the job guidelines, cautions, and warnings.

LAP Sheets

The LAP Sheets are an optional component that can be used to individualize instruction. The following instructions should be followed only if you are using the LAP Sheets.

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R If you want the student to complete any of the assignments on the LAP Sheet that are labeled optional, assign these to the student. Be sure to provide any needed resources.

OBJECTIVE 1

Describe career opportunities related to food science and nutrition.

R Discuss career opportunities relating to food science and nutrition. Ask the students for specific examples of careers relating to the food industry.

O Invite professionals involved with food science and nutrition to speak to the class about their careers. Include representatives of local vocational training programs.

O Bring a newspaper or trade journal and discuss the classified advertisements that relate to jobs involving the food industry. Discuss the requirements and training required for the jobs, the salary ranges, and working conditions of the jobs.

O Operate a school-based food product enterprise or restaurant. For a food product, have students involved in all aspects of the business, including design, assembly or preparation, packaging, and marketing.

OBJECTIVE 2

List personal qualifications needed for food science and nutrition-related careers.

O Discuss personal qualifications for food science and nutrition professionals. Ask the students why they think these qualifications are important. Ask the students if there are any other qualifications they would add to this list.

OBJECTIVE 3

List steps in making career decisions.

O Discuss the importance of the steps in making career decisions.

O Have the students interview a professional involved in a career relating to the food industry. Instruct the students to ask questions relating to why the person chose that career and the steps he or she took to achieve a position in that career. Review proper interview techniques with the students. Have the students write a short paper on their interview.

OBJECTIVE 4

Profile food science and nutrition-related businesses in the community. (Assignment Sheet 1)

R See the general instructions for all Assignment Sheets.

O Discuss the economics of food-related businesses in your community. For example, how many people do they employee, do they seem to be doing well financially, etc.

OBJECTIVE 5

Summarize personal interests. (Assignment Sheet 2)

R See the general instructions for all Assignment Sheets.

OBJECTIVE 6

Profile career opportunities. (Assignment Sheet 3)

R See the general instructions for all Assignment Sheets.

O If your school has the *Oklahoma Career Search* book and software, you may choose to use these to help supplement this Assignment Sheet.

OBJECTIVE 7

Compare career opportunities. (Assignment Sheet 4)

R See the general instructions for all Assignment Sheets.

O If your school has the *Oklahoma Career Search* book and software, you may choose to use these to help supplement this Assignment Sheet.

OBJECTIVE 8

Develop a personal career plan. (Assignment Sheet 5)

R See the general instructions for all Assignment Sheets.

O Discuss that proper interviewing skills and resume writing skills are essential in obtaining employment, even if only for part-time or summer work in a field. Obtain the following OSU publications related to obtaining employment and share them with the students:

- T-6102 *Skills for Employment: Assessing Job Skills*
- T-6103 *Skills for Employment: Writing a Resume*
- T-6104 *Skills for Employment: The Job Search*
- T-6105 *Skills for Employment: The Job Application*
- T-6106 *Skills for Employment: The Job Interview*
- T-6107 *Skills for Employment: Accepting and Starting the Job*

O Have the students write their resume.

O Ask the students if any of them are doing things right now that might help them in a future job. Examples might be working part-time and volunteer work with a food-bank or meals-on-wheels program.

EVALUATION

Pretest

- Use the unit Written Test for *both* the pretest and posttest. Give the students the pretest before they begin the unit.

- You may wish to use the CIMC publication *Measuring Learning and Competency Gains: The Pretest/Posttest Approach* for instructions and suggestions on giving pretests and using the results. Information for ordering this material is included in the optional resources section.

- Use pretest results to guide individual students in progressing through the unit, doing enrichment work, or moving to the next unit.

Focus Assignment

- Use an informal evaluation of the focus assignments as a diagnostic tool for determining if any students need extra help in reading comprehension or writing skills. Refer these students to their English instructor, Learning Resource Center, or Educational Enhancement Center.

Assignment Sheet

- Evaluate students on Assignment Sheet activities. Students must repeat an Assignment Sheet until they have mastered the activity.

- Complete each student's Competency Profile.

Skill Test

- Explain to the students that they will be asked to demonstrate the procedures on the Job Sheets as a skills test.

- Describe the rating scale used on the skills test.

- Reteach and retest as necessary.

- Complete each student's Competency Profile.

Posttest

- After they have completed the unit, give students the Written Test again.

- Explain to the students that they will be asked to demonstrate on the Written Test actions listed in the specific objectives.

- You may wish to use the CIMC publication *Measuring Learning and Competency Gains: The Pretest/Posttest Approach* for instructions and suggestions on giving posttests and using the results. Information for ordering this material is included in the optional resources section.

- Reteach and retest as necessary to meet individual student needs and state standards for student learning and competency gains.

- Complete the appropriate sections of the Competency Profiles.

- Review individual and group performance to evaluate teaching effectiveness. Adjust scope, sequence, or instructional methods for additional lessons as required.

OPTIONAL RESOURCES

Publications

- *Measuring Learning and Competency Gains: The Pretest/Posttest Approach.* Stillwater, OK: CIMC, Oklahoma Department of Vocational and Technical Education, 1992. For ordering information call 800-522-5810.

- *Oklahoma Career Search.* Book and software. Stillwater, OK: Oklahoma Department of Vocational and Technical Education, 1994.

- The following Oklahoma State University Publications:

  - ☐ T-6102 *Skills for Employment: Assessing Job Skills*
  - ☐ T-6103 *Skills for Employment: Writing a Resume*
  - ☐ T-6104 *Skills for Employment: The Job Search*
  - ☐ T-6105 *Skills for Employment: The Job Application*
  - ☐ T-6106 *Skills for Employment: The Job Interview*
  - ☐ T-6107 *Skills for Employment: Accepting and Starting the Job*

  ☑ **NOTE:** For information on obtaining these publications contact your local Oklahoma County Extension Office. Out-of-state teachers may contact their local extension service for publications in their state or may contact Central Mailing Services, Oklahoma State University, Stillwater, OK 74078-0550.

UNIT REFERENCES

Publications

- Duyff, Hasler, and Ohl. *Modern Meals.* Oklahoma City, Oklahoma: McGraw-Hill, 1990.

- Kowtaluk, Helen and Alice Kopan. *Food for Today.* Mission Hills, California: Glencoe, 1990.

- Largen, Velda and Deborah Bence. *Guide to Good Food.* South Holland, Illinois: Goodheart-Willcox, 1992.

- Mehas, Kay and Sharon Rodgers. *Food Science and You.* Mission Hills, California: Glencoe, 1989.

- *Parenting and Child Development.* Stillwater, OK: Oklahoma Department of Vocational and Technical Education, Curriculum and Instructional Materials Center, 1994.

ANSWERS

EXPLORING CAREERS 11

ASSIGNMENT SHEETS

OBJECTIVE 4

Assignment Sheet 1

Student answers will vary. Students should profile two food science or nutrition-related businesses in the community. The profiles should be a one-page summary and include responses to the criteria listed in the Assignment Sheet. Papers should contain correct grammar, spelling, and punctuation.

OBJECTIVE 5

Assignment Sheet 2

Student answers will vary. Students should respond to each question listed.

OBJECTIVE 6

Assignment Sheet 3

Student answers will vary. Students should respond to each question listed.

OBJECTIVE 7

Assignment Sheet 4

Student answers will vary. Students should respond to each question listed.

OBJECTIVE 8

Assignment Sheet 5

Student answers will vary. Students should complete the personal career plan.

WRITTEN TEST

OBJECTIVE 1

Answer should include the following:

- **Food service industry** – all organizations and areas involved in the preparation and serving food outside the home; may be in a commercial or non-commercial business
- **Food science and/or technology** – the use of science and engineering to develop new food products, packaging, and food handling/processing methods to improve the quality of processed foods and ensure an acceptable and safe food supply
- **Family and consumer sciences** – work that provides programs, products and services that help improve the quality of life for families and individuals

OBJECTIVE 2

Answer should include the following in any order:

- Apply computer technology
- Apply leadership skills
- Be dedicated to the job
- Communicate effectively
- Get along with others
- Listen to others
- Maintain ones own personal health
- Maintain professional appearance
- Recognize the relationship between food consumption and health
- Understand the chemical and physical nature of food
- Understand the science of human nutrition
- Understand basic food and nutrition principles and food preparation techniques

- Use food preparation equipment correctly

- Value the health of others

OBJECTIVE 3

Answer should include the following:

1. Identify and evaluate personal characteristics, aptitudes, skills, and hobbies
2. Compile a list of working conditions of personal importance.
3. Research careers of interest.
4. Set challenging but realistic career goals.
5. State goals specifically and in writing.
6. Set a time schedule for meeting goals.
7. Obtain needed training and/or education.
8. Pursue a position in the field of interest.

OBJECTIVE 4 **Evaluated on Assignment Sheet 1.**

OBJECTIVE 5 **Evaluated on Assignment Sheet 2.**

OBJECTIVE 6 **Evaluated on Assignment Sheet 3.**

OBJECTIVE 7 **Evaluated on Assignment Sheet 4.**

OBJECTIVE 8 **Evaluated on Assignment Sheet 5.**

CIMC
TEST CODE SHEET

VOCATIONAL PROGRAM (BOOK TITLE) *Food Science and Personal Nutrition*

UNIT NUMBER AND TITLE — 11 — Exploring Careers

TOTAL NUMBER OF TEST QUESTIONS 25

TOTAL NUMBER OF BASIC SKILL QUESTIONS 3

OBJECTIVE NUMBER	TEST QUESTION NUMBER(S)	BASIC SKILL CODE(S)
1	1-3	W
2	1-14	X
3	1-8	X
4	Evaluated on AS 1	
5	Evaluated on AS 2	
6	Evaluated on AS 3	
7	Evaluated on AS 4	
8	Evaluated on AS 5	

Food Science and Personal Nutrition

Instructor's Resource Package

LAP Sheets

Transparency Masters

Written Tests

Handouts

Developed by the
Curriculum and Instructional Materials Center
for the Family and Consumer Sciences Education Division
Oklahoma Department of Vocational and Technical Education

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Curriculum and Instructional Materials Center

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Stillwater, Oklahoma 74074-4364

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LAP
SHEET

VALUING FOOD IN YOUR WORLD

1

Name ____________________

Check the blank as you complete each step.

1. Take	____	the pretest provided by your instructor. Have your instructor evaluate your completed test. After your test has been evaluated, follow your instructor's recommendations.
2. Read	____	the introduction, unit objective, and specific objectives.
3. Do	____	the focus assignments.
4. Stop	____	and have your instructor evaluate your work from the focus assignment. After your work has been evaluated, follow your instructor's recommendations.
5. Study	____	the Information Sheet, objectives 1 and 2.
Optional: Write	____	a short paper on food science and nutrition. Include recent developments in the fields of food science and nutrition. Explain how they benefit society.
Optional: Give	____	a short oral report on a food science related problem that you create and solve using the scientific method.
6. Do	____	Assignment Sheet 1.
7. Stop	____	and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.
Optional: Identify	____	specific examples of nutrition-related careers.
Optional: Interview	____	a professional in a nutrition-related career.

May be photocopied for student use.

Optional: **Find**	_____	newspaper or trade journal advertisements that relate to nutrition-related jobs. Think about the requirements and training needed for the job.
8. Do	_____	Assignment Sheet 2.
9. Stop	_____	and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.
Optional: **Identify**	_____	the businesses that may be indirectly related to a nutrition- related business.
Optional: **Interview**	_____	a local business entrepreneur.
10. Study	_____	the Information Sheet, objective 5. Think about what needs were fulfilled with the foods you ate or prepared today. Were you really hungry or were you eating to meet other needs?
Optional: **Write**	_____	a paragraph on how our food needs differ as we get older.
11. Study	_____	the Information Sheet, objective 6.
Optional: **Identify**	_____	examples of some of your favorite and least favorite foods. Discuss your reasons for liking or disliking them with the class.
Optional: **Write**	_____	a short report on the results of a poll you take of friends and family members about their personal food choices. Ask why they chose a certain food to eat.
Optional: **Give**	_____	a short oral report on a memorable meal that you had. Explain why this meal was memorable.
12. Do	_____	Assignment Sheet 3.
13. Stop	_____	and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

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	Optional: Write	____	a radio advertisement for a food product you like. Read it in front of your class to determine if your product would sell.
	Optional: Think	____	about how much money is spent on advertising.
14.	**Do**	____	Assignment Sheet 4.
15.	**Stop**	____	and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.
	Optional: Give	____	a short oral report on how you could improve your food choices. Use your food diary to identify poor eating patterns.
	Optional: Give	____	a short oral report on some common food customs (and the reasons behind them) of your own cultural or religious background.
16.	**Study**	____	Information Sheet, objective 9.
	Optional: Identify	____	ethnic foods and spices in your local super market. Check the frozen, canned, and convenience foods and fresh produce.
	Optional: Give	____	a description of food in a country that you have visited. Describe the differences in food there compared to the U.S. Did you enjoy it?
17.	**Do**	____	Assignment Sheet 5.
18.	**Stop**	____	and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.
	Optional: Find	____	the similarities in the recipes your classmates have brought. Compare ingredients in your recipe with others from the same country of origin.

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Optional: Interview ____ a chef from a local restaurant. Ask the chef to explain the use of ingredients in ethnic dishes served at his or her restaurant.

19. Study ____ the Information Sheet, objective 11.

Optional: Identify ____ which foods are grown and produced locally. How does this influence the meals you eat?

Optional: Write ____ a short report on food eaten in Colonial America.

Optional: Identify ____ examples of ethnic festivals and describe the foods served there.

Optional: List ____ foods and ingredients that are popular in a region of the U.S. due to climate or geography.

21. Do ____ Assignment Sheet 6.

22. Stop ____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

Optional: Plan ____ a complete menu using foods from another country or one region of the U.S. Select and prepare a dish to bring to class.

23. Study ____ the Information Sheet, objective 13. Think of factors that could affect the food supply to the area in which you live.

Optional: Identify ____ a recent natural or man-made disaster that affected food supply to some part of the world.

Optional: List ____ foods that are transported to your area. (not grown or produced locally). Think about what would happen if you could not get these foods anymore.

May be photocopied for student use.

Optional: Write: ____ a paragraph on why you should be concerned about food shortages in other parts of the world.

24. Do ____ Assignment Sheet 7.

25. Stop ____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

Optional: Identify ____ and discuss which countries the U.S. has free trade agreements with and which ones have restrictions or embargoes on their trade with the U.S.. Think about how this affects the U.S. and other countries.

26. Take ____ the posttest provided by your instructor. Have your instructor evaluate your completed test. After your test has been evaluated, follow your instructor's recommendations.

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Food Science

How does a food scientist solve a problem?

Scientists follow a general procedure called the scientific method. The steps include:

1. **State the problem.**
   Asking the question "why".
2. **Form a hypothesis.**
   Using existing information to make an educated "guess".
3. **Observe and experiment.**
   Beginning to test the hypothesis. This may eliminate some answers and open doors to other questions.
4. **Interpret data.**
   Analyzing the results of the experiments. Scientists look for anything that supports or contradicts the hypothesis.
5. **Draw conclusions.**
   The scientist forms a theory or an explanation based on the data. Other scientists must retest the theory by repeating the experiments to verify results.

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Professional Organizations

American Association of Family
and Consumer Sciences
1555 King St.
Alexandria, VA 22314-2752
Publications: *Home Economics Research Journal* (quarterly), *Journal of Home Economics* (quarterly)

Home Economists in Business
Blendonview Office Park
5008-16 Pine Creek Drive, Suite B
Westerville, OH 43081-4899
Publications: *Business Career Opportunities for Home Economists* (booklet), *Corporate Consumer Trendletter* (quarterly)

American Vocational Association
1410 King Street
Alexandria, VA 22314
Publication: *Vocational Education Journal* (monthly)

American Dietetic Association
216 W. Jackson Blvd., Suite 800
Chicago, IL 60606-6995
Publication: *Journal of the American Dietetic Association* (monthly)

American School Food Service Association
1600 Duke Street, 7th Floor
Alexandria, VA 22314
800-877-8822
Publications: *School Food Service Journal* (SFS Journal) (11/year), *School Food Service Research Review* (semiannual)

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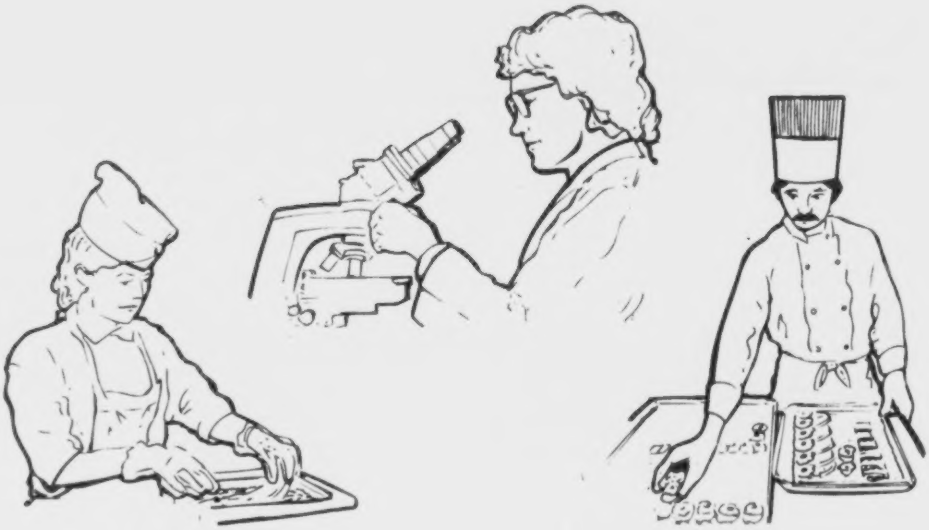
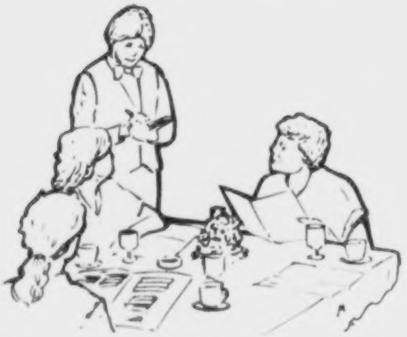
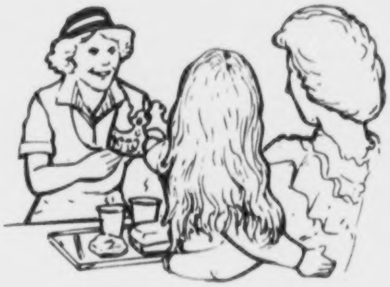
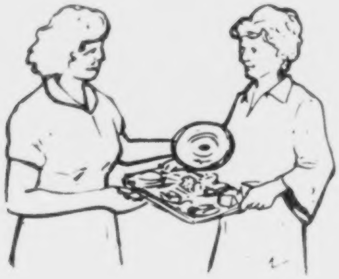
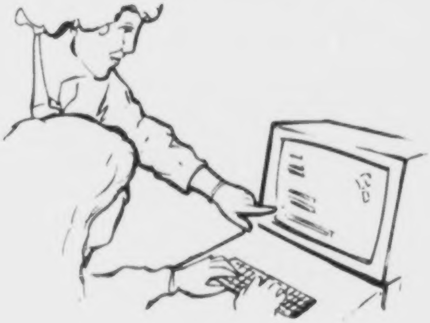
Careers











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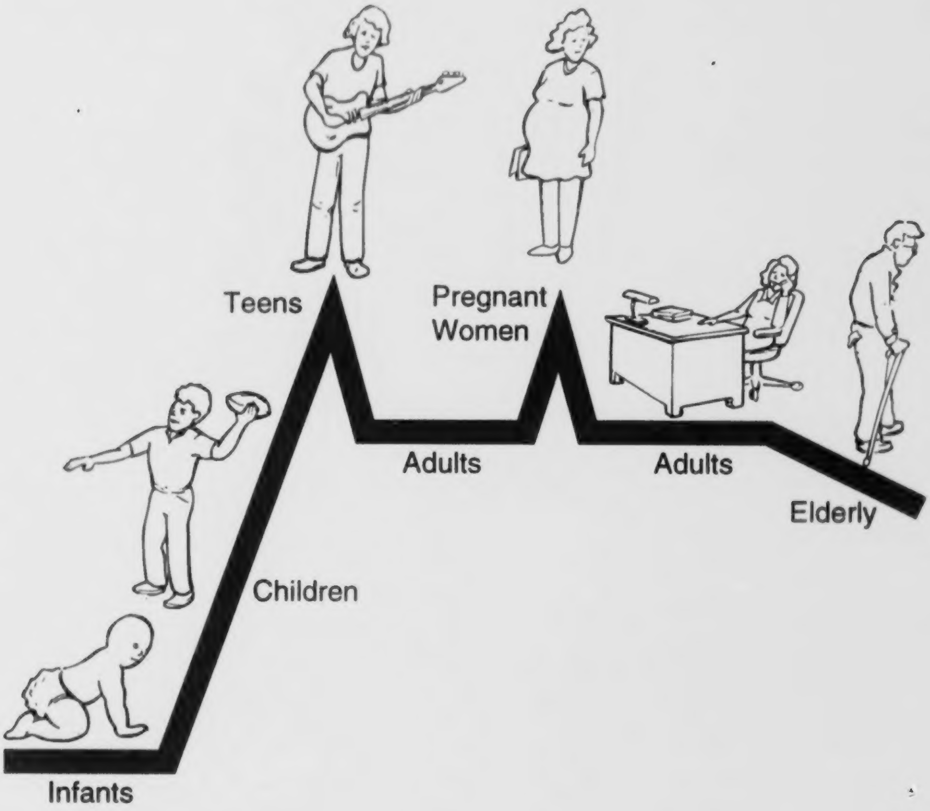
TM 4

Food Needs Change During Lifecycle


Teens
Pregnant Women
Adults
Adults
Elderly
Children
Infants

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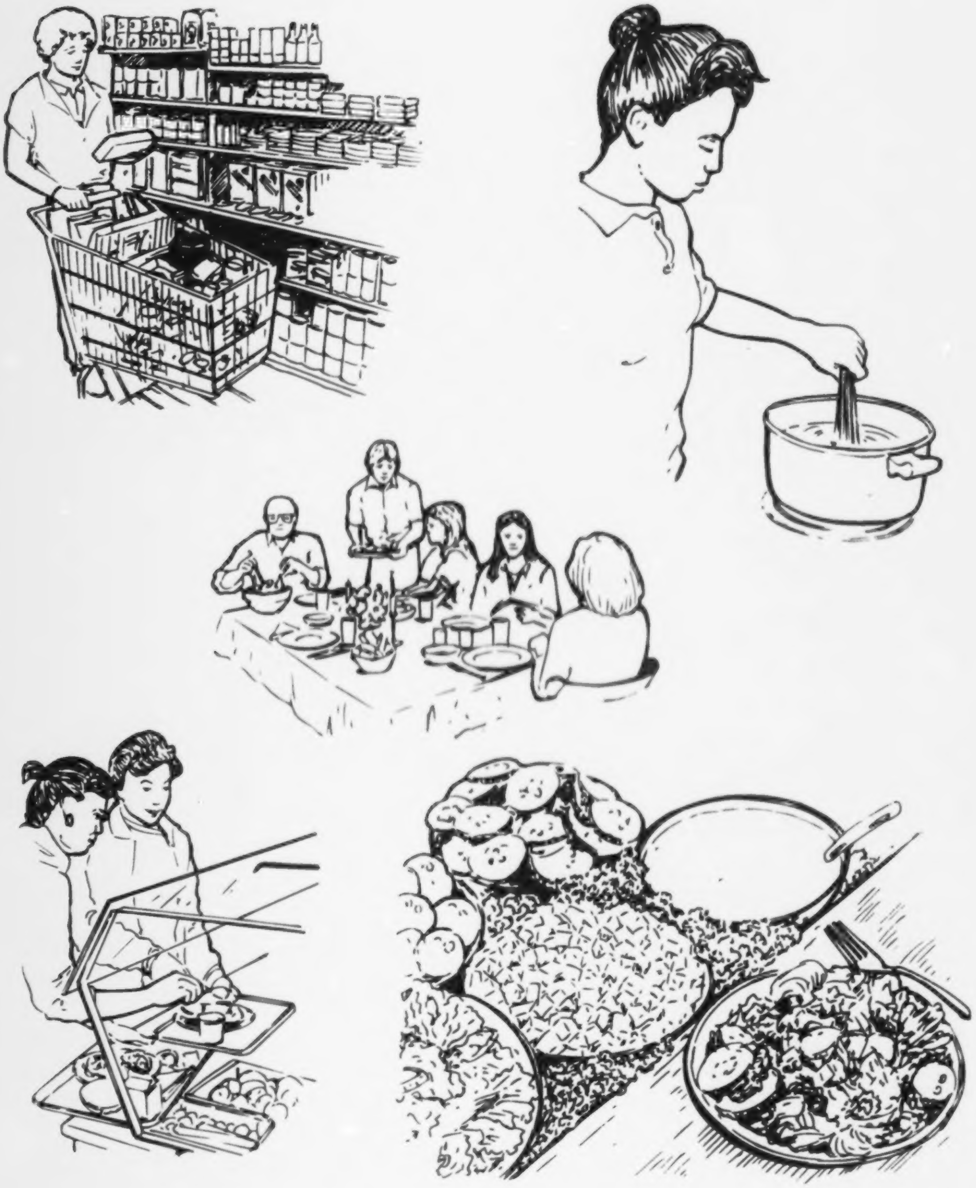
Food Choices



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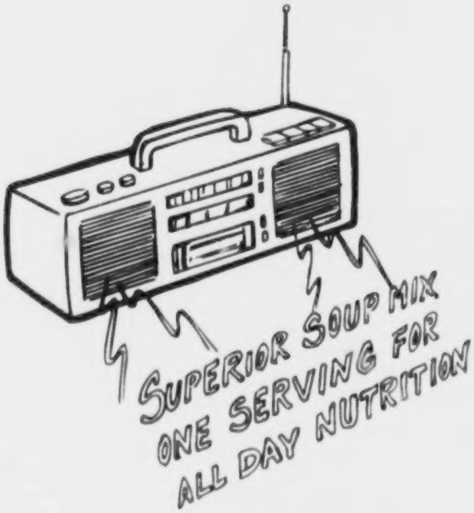
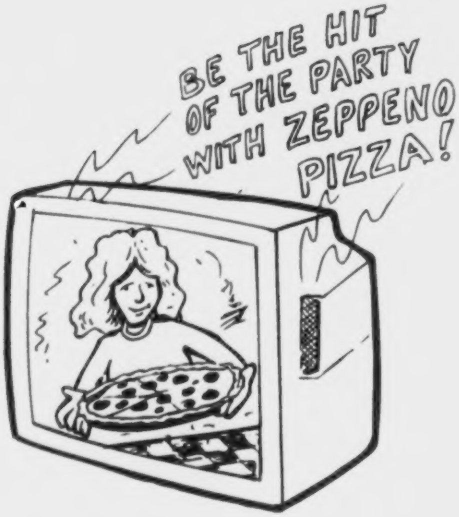
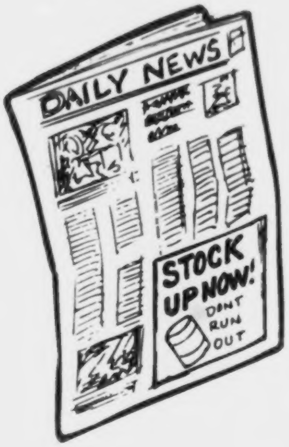
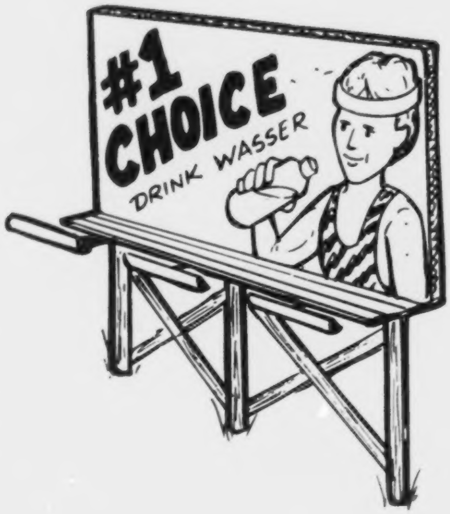
Advertising Appeals


SUPERIOR SOUP MIX
ONE SERVING FOR
ALL DAY NUTRITION


BE THE HIT
OF THE PARTY
WITH ZEPPENO
PIZZA!


DAILY NEWS
STOCK UP NOW!
DON'T RUN OUT


#1 CHOICE
DRINK WASSER

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World Map

Identify the global origins of some popular foods and ingredients in the United States.

France - crepes, pastries, croissant

Germany - sausage, sauerkraut

Italy - oregano, garlic, spaghetti, olive oil, spumoni

China - ginger, egg rolls, fried rice

Mexico - red pepper, cilantro, taco, tortilla, salsa

India - curry, cumin

Greece - mousakka, baklava

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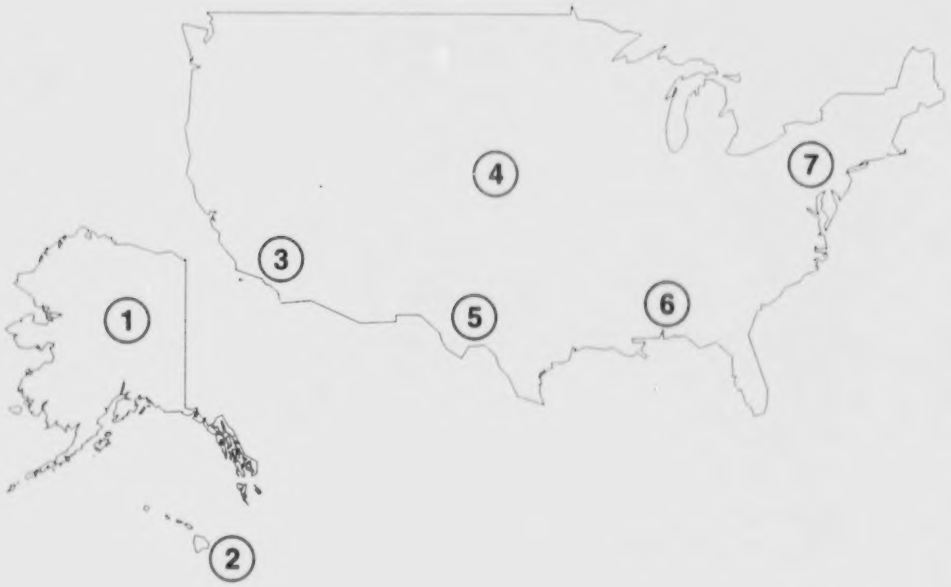
Regions in the United States



1 **Alaska** – fish, shellfish, game

2 **Hawaii** – fish, shell fish, pork, chicken, coconut, pineapple papaya, mango, poi

3 **Pacific Coast** – fish, shellfish, game, fruits, vegetables, berries, sourdough bread

4 **Midwest** – corn, wheat, beef, pork, dairy products, fruits, vegetables

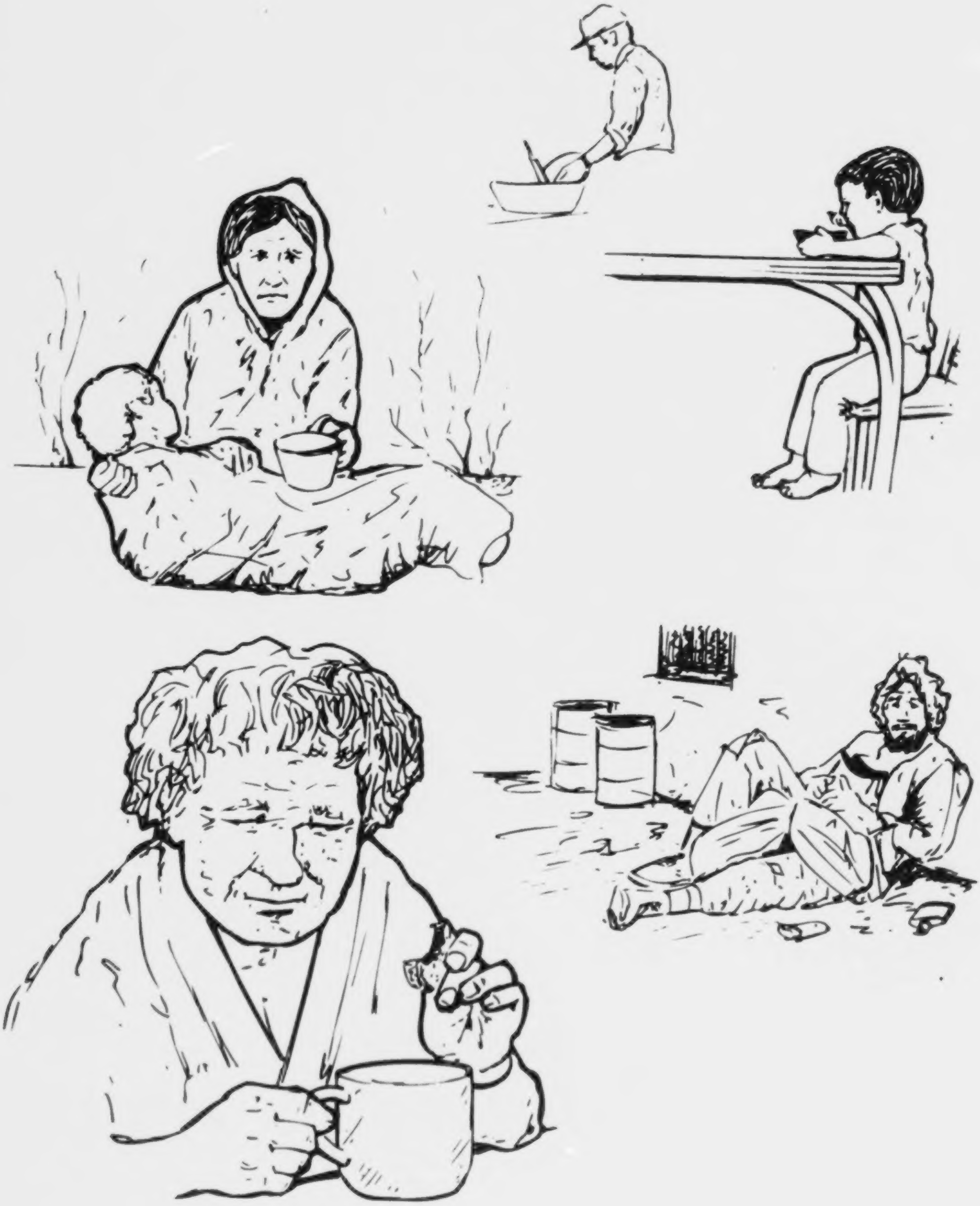
5 **Southwest** – chili, barbecue beef, beans, corn, mexican foods

6 **South** – shellfish, fish, ham rice, corn, grits, sweet potatoes, okra, greens, pecans, gumbo, hushpuppies

7 **Northeast** – shellfish, fish wildgame, fruits, corn, beans, squash, pumpkins, chowder

May be photocopied for student use.

World Hunger



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WRITTEN
TEST

VALUING FOOD IN YOUR WORLD

1

Name ______________________ Date ________ Score ___

OBJECTIVE 1

Define food science.

____

____

____

OBJECTIVE 2

Define nutrition.

____

____

____

OBJECTIVE 3

Evaluated on Assignment Sheet 1.

OBJECTIVE 4

Evaluated on Assignment Sheet 2.

OBJECTIVE 5

Distinguish between the primary and secondary needs met by food. In each blank, write a "P" if the need described is a primary need and an "S" if the need is a secondary need.

_____ 1. Food is fun to eat and plays an important part in social activities. Food is often the highlight of an event at many social activities in all parts of the world.

_____ 2. Many people enjoy their leisure time creatively preparing and presenting meals. Many television shows, cook books, and magazines are devoted to the art of food preparation.

_____ 3. Food helps the body grow, heal, and renew itself. A healthy body is constantly replacing cells that are worn out or damaged.

May be photocopied for student use.

____ 4. Protect and regulate body processes - Breathing, digesting food, and building red blood cells are examples of processes that continuously happen in the body. Without food these processes become less effective and eventually shut down.

____ 5. Food is often an important link to a person's cultural heritage. Many people have a strong need to identify with their cultural background.

____ 6. Appetite is the psychological desire to eat. Food satisfies your appetite. Your appetite is created by your food habits and your past experiences. If you are used to eating at a certain time each day or if you see a favorite food, this can make you think you are hungry even if you are not. Your appetite may continue after your hunger is satisfied.

____ 7. Hunger is the physiological need to eat. At the most basic level we need food to survive. If we do not eat when we get hungry we may become irritable or weak. Chronic hunger is a cause of serious illness.

____ 8. Food continuously supplies and replenishes the energy our bodies burn in work and play.

OBJECTIVE 6

Explain factors that influence food choices. Explain five (5) of the factors in the blanks provided.

Advertising
Availability
Convenience
Cultural and religious influences
Health

Personal preference
Personal resources
Social influences
Trends and technology

____

____

____

____

____

____

____

May be photocopied for student use.

OBJECTIVE 7 **Evaluated on Assignment Sheet 3.**

OBJECTIVE 8 **Evaluated on Assignment Sheet 4.**

OBJECTIVE 9 **Identify the global origins of some foods and ingredients popular in the United States**. In the blanks provided, identify four foods or ingredients and the country associated with each.

OBJECTIVE 10 **Evaluated on Assignment Sheet 5.**

OBJECTIVE 11 **Explain the role of environment and culture in the development of United States regional foods.** In the blanks provided, write a short paragraph explaining how environment and culture influenced the development of regional foods.

Environment – ____________________

May be photocopied for student use.

Culture – ________________________________

____

____

____

____

OBJECTIVE 12

Identify regional and specialty foods in the United States.
Identify one (1) food for each region.

Northeast ________________________________

____

South ________________________________

____

Midwest and the Plains ________________________________

____

Southwest and West ________________________________

____

Pacific coast ________________________________

____

Alaska ________________________________

____

Hawaii ________________________________

____

OBJECTIVE 13

Evaluated on Assignment Sheet 6.

May be photocopied for student use.

OBJECTIVE 14 **Explain factors affecting the global food supply.** In the blanks provided, explain four (4) factors.

Agricultural technology
Diseases
Energy losses
Food technology
Government policies
Natural and man-made disasters
Seasons and weather
Transportation
Travel

____
____
____

____
____
____

____
____
____

____
____
____

OBJECTIVE 15 **Evaluated on Assignment Sheet 7.**

May be photocopied for student use.

I'M HUNGRY

Did your parents ever tell you to "finish your food, there are people starving to death in the world"? Unfortunately, they were right. Several thousand people die of starvation each day. World hunger is still a serious problem that affects millions of people. History shows us that this is nothing new, although today the circumstances are more complex.

Today, lack of food is not the only problem causing starvation. Poverty, inflation, population explosions, poor food distribution, and waste contribute to the crisis.

During periods of inflation many countries cannot afford the materials needed to grow or buy their own food. Prices of grain, fuel, and fertilizer are out of reach for many poverty stricken nations.

Poverty also contributes to the rapidly growing population in many countries. Families tend to have large numbers of children to compensate for those who will not survive. Overpopulation creates an added burden on the already short food supply.

Poor distribution of available food is a major source of inadequate supplies to areas in need. Government policies, wars, natural disasters and lack of transportation and storage can prevent food from reaching its destination.

The waste of natural resources in poor countries is another factor affecting world hunger. Lack of education results in poor farming practices that make fertile land less productive and more susceptible to drought. Water supplies are often contaminated by pollution due to overcrowded conditions. Poor storage techniques waste the existing food supply. In addition, many natural resources are exploited by wealthy land owners who have control and power over the impoverished population.

There is no simple solution to world hunger. We can start by educating poor people about good farming and food management practices. This will allow them to produce food locally using available resources.

Famine relief involves the management of food, financial resources, and energy on a world-wide scale. In the U.S. more food is thrown away as garbage than is consumed by some countries. Technological advances in agriculture, food processing, medicine, and nutrition continue to work toward the goal of making more food available to those in need. The challenge to society is to produce and conserve food and energy sources in order to provide a level of nutrition capable of supporting health to as many people in the world as possible.

May be photocopied for student use.

PROFESSIONAL ORGANIZATIONS

American Association of Family
and Consumer Sciences
1555 King St.
Alexandria, VA 22314-2752
Publications: *Home Economics Research Journal* (quarterly), *Journal of Home Economics* (quarterly)

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Alexandria, VA 22314
800-877-8822
Publications: *School Food Service Journal* (SFS Journal) (11/year), *School Food Service Research Review* (semiannual)

May be photocopied for student use.

LAP SHEET

EXAMINING FOOD, NUTRIENTS, AND THE BODY

2

Name ______________________________

Check the blank as you complete each step.

1. **Take** _____ the pretest provided by your instructor. Have your instructor evaluate your completed test. After your test has been evaluated, follow your instructor's recommendations.

2. **Read** _____ the introduction, unit objective, and specific objectives.

3. **Do** _____ the focus assignments.

4. **Stop** _____ and have your instructor evaluate your work from the focus assignment. After your work has been evaluated, follow your instructor's recommendations.

5. **Study** _____ the Information Sheet, objective 1.

Optional: Find _____ pictures which show the body using energy.

6. **Study** _____ the Information Sheet, objective 2.

Optional: Create _____ a presentation. Pretend you are a tour guide for the human body. You are to take a group on a sight seeing trip through the digestive tract and select major stops to describe the interesting activities going on there. Describe your tour in 1-2 pages, including dialogue.

7. **Study** _____ the Information Sheet, objective 3. Read Handout 2, "Obesity." Obtain a copy from your instructor.

Optional: Write _____ a paragraph on why you should be concerned about calorie intake on a regular basis.

Optional: Identify _____ ways to determine the calorie content of food.

May be photocopied for student use.

Optional: Identify _____ ways to determine the calorie content of food.

8. Study _____ the Information Sheet, objective 4.

9. Calculate _____ your BMR using Handout 3, "Computation of Your Basal Metabolic Rate."

10. Do _____ Assignment Sheet 1.

11. Stop _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

Optional: Identify _____ ways to reduce improve your diet and increase or decrease your calorie intake.

12. Study _____ the Information Sheet, objective 6.

13. Study _____ the Information Sheet, objective 7.

Optional: Write _____ a report on one nutrient. Include what it does for the body and determine what other nutrients are needed for that process.

Optional: List _____ 10 ways to include water in your diet (not including drinking water).

14. Study _____ the Information Sheet, objective 8.

Optional: Compare _____ breakfast cereals. Tour a local super market with the class. Compare breakfast cereals. Determine which ones have high nutrient value, which do not. Determine which contain higher amounts of sugar as opposed to the other ingredients.

Optional: Give _____ examples of and compare an empty calorie snack (low nutrient density) to a nutritious snack (high nutrient density).

15. Study _____ the Information Sheet, objective 9.

May be photocopied for student use.

Optional: Plan _____ a meal for a vegetarian.

Optional: Identify _____ commonly used non-animal foods that could be combined to provide all of the essential amino acids.

16. Study _____ the Information Sheet, objective 10.

Optional: Write _____ a short report on protein deficiency.

17. Study _____ the Information Sheet, objective 11.

Optional: Find _____ current articles on the importance of fiber. Determine if the articles all agree. Report your findings to your instructor.

Optional: Find _____ examples of foods to produce a menu that is high in fiber. Compare the information to your typical diet.

18. Do _____ Assignment Sheet 2.

19. Stop _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

Optional: Write _____ a one-page report on the effects of sugar on teeth.

20. Study _____ the Information Sheet, objective 13.

Optional: Give _____ a short oral report to your instructor about the difference between cholesterol and fat. Find examples of foods that have high cholesterol levels.

Optional: Identify _____ a variety of fats that are monounsaturated and polyunsaturated during a visit to a local supermarket.

21. Study _____ the Information Sheet, objective 14.

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Optional:
Interview _____ a medical doctor or dietician. Ask questions concerning health issues related to consuming fats and the idea of low-fat diets.

22. Do _____ Assignment Sheet 3.

23. Stop _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

Optional:
Compare _____ grams of fat in a regular bag of cookies and one that is low-fat. Do the same for tortilla chips. Discuss your findings with your instructor.

24. Study _____ the Information Sheet, objective 16.

Optional:
Find _____ an article related to vitamins in health sections of newspapers or health-related magazines that are supplied by your instructor. Summarize the article and report to your instructor.

25. Study _____ the Information Sheet, objective 17.

Optional:
Design _____ a poster that shows food sources of fat-soluble and water-soluble vitamins.

26. Do _____ Assignment Sheet 4.

27. Stop _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

28. Study _____ the Information Sheet, objective 19.

Optional:
Write _____ a one-page report on osteoporosis.

Optional:
Give _____ suggestions to your instructor on what can be done to reduce sodium in the diet. Look at nutrition labels from a variety of processed foods (sandwich meats, condiments, frozen entrees, snacks), to identify which foods have a high sodium content.

May be photocopied for student use.

29. **Study** _____ the Assignment Sheet, objective 20.

30. **Do** _____ Assignment Sheet 5.

31. **Stop** _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

32. **Take** _____ the posttest provided by your instructor. Have your instructor evaluate your completed test. After your test has been evaluated, follow your instructor's recommendations.

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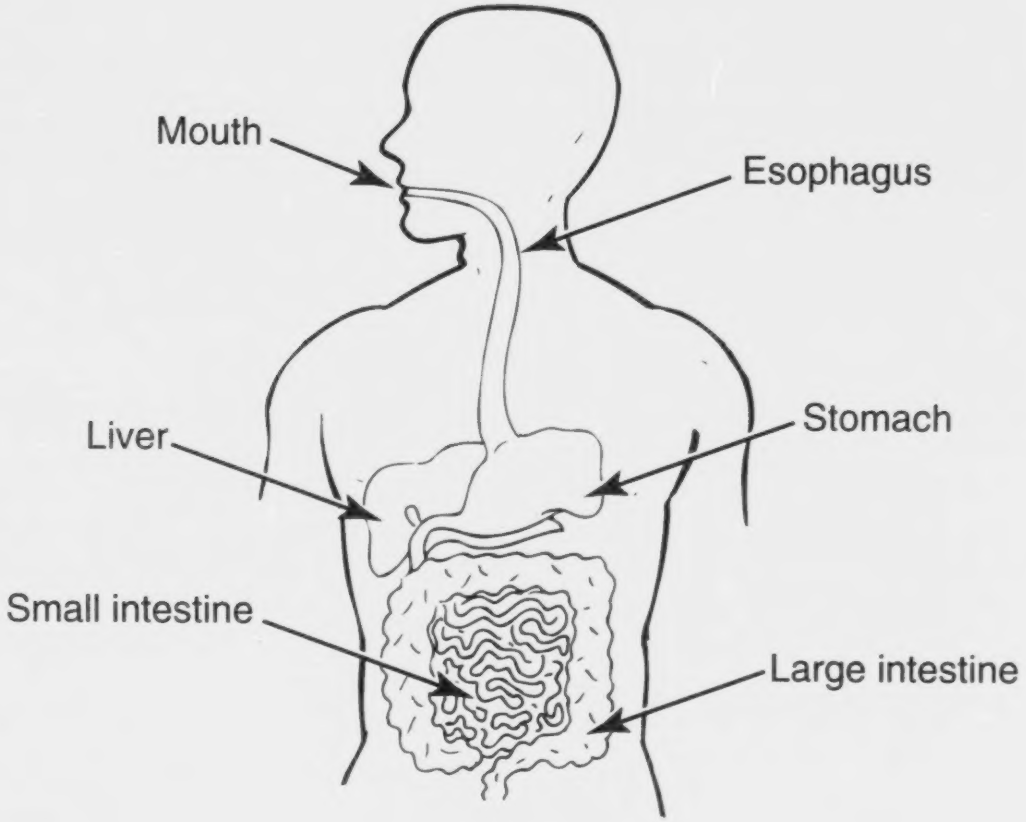
How Food is Digested


Mouth
Esophagus
Liver
Stomach
Small intestine
Large intestine

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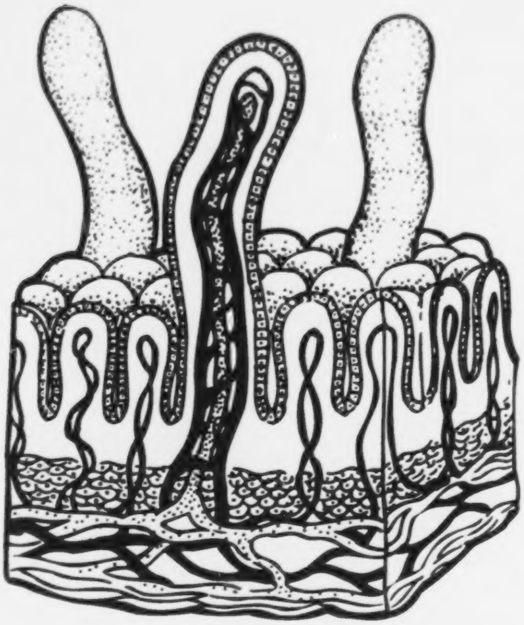
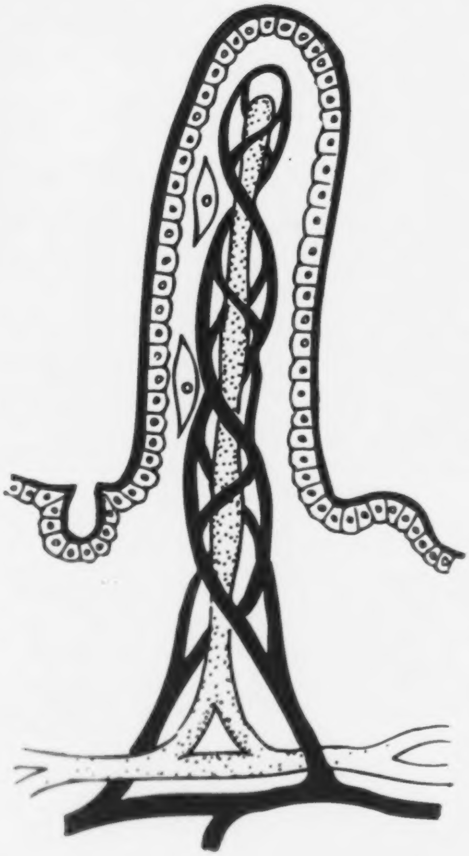
Villi in Small Intestine





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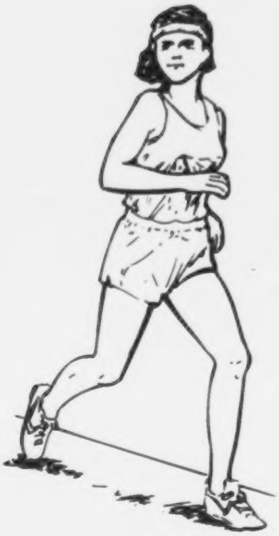
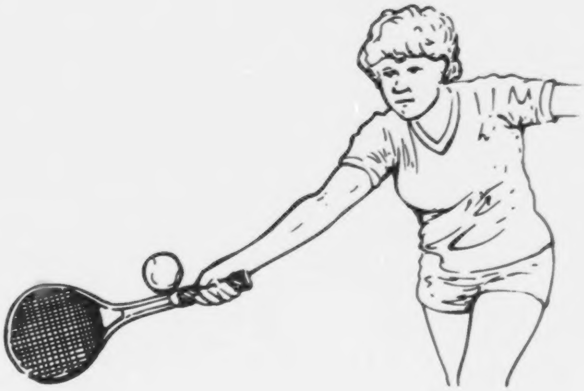
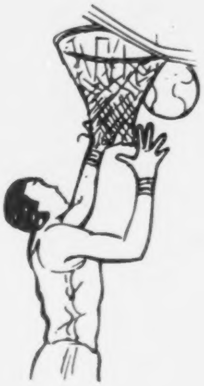
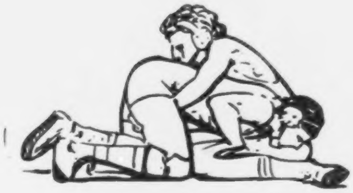
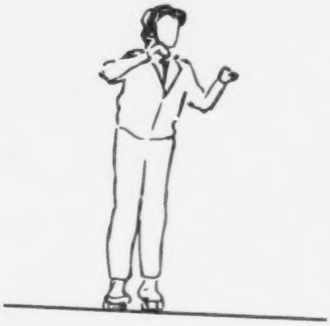
Exercise

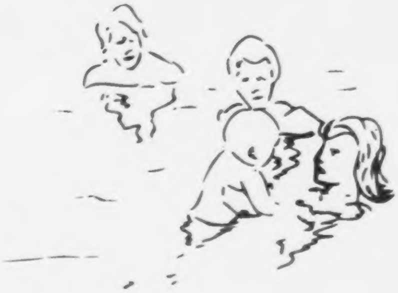


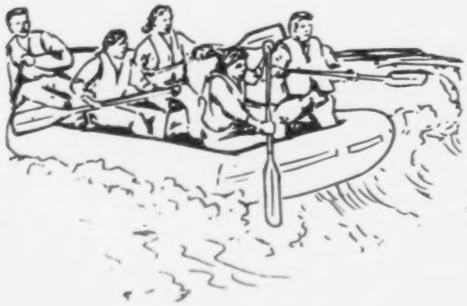


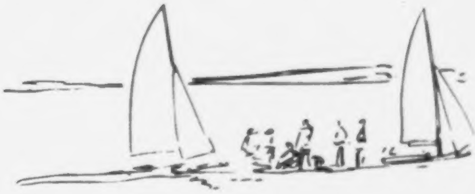












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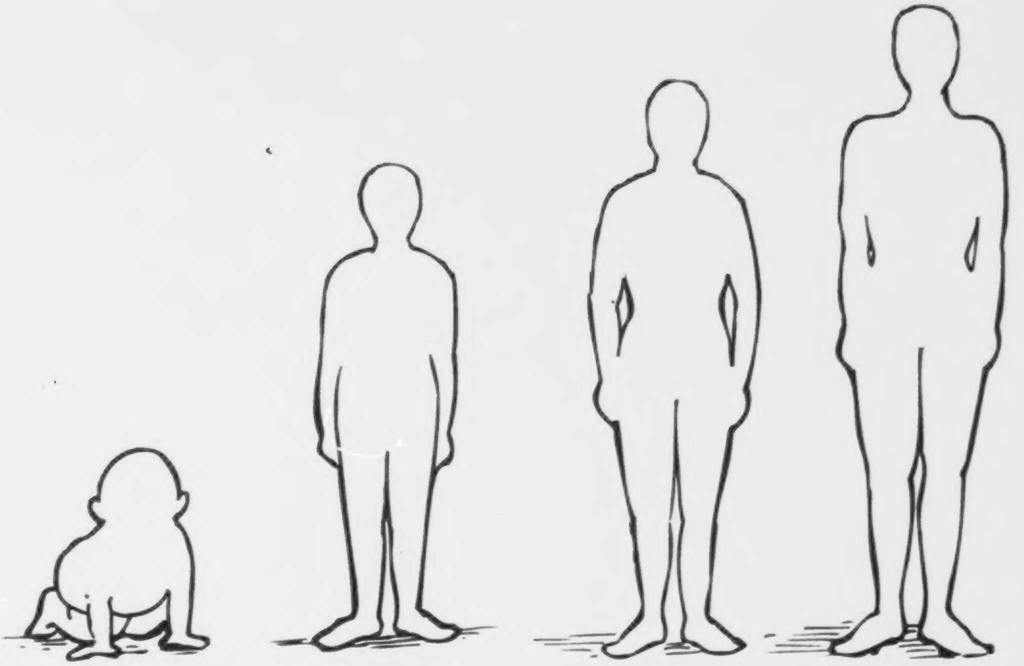
Changing Energy Requirements Over The Life Cycle



1 year
100 kcal/day/kg

4-6 year
90 kcal/day/kg

7-9 year
80 kcal/day/kg

18 year
24 kcal/day/kg

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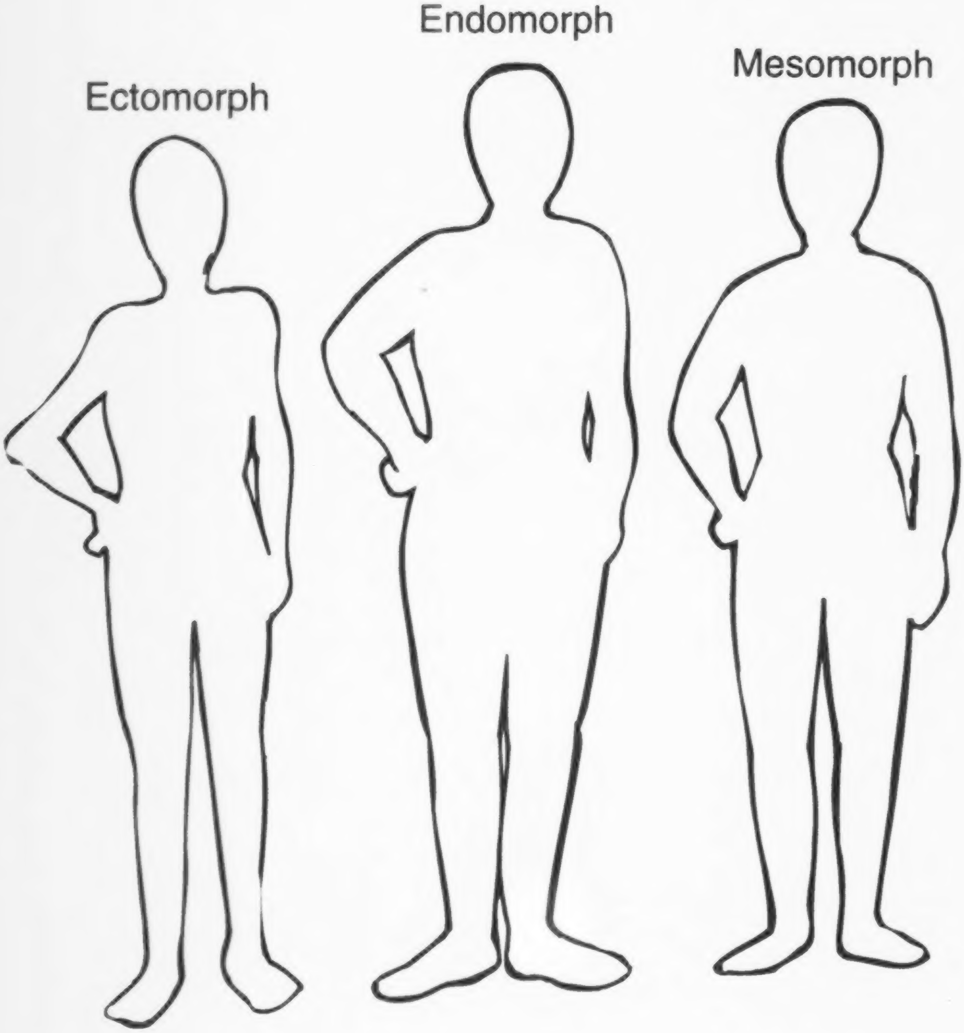
Body Types


Endomorph
Mesomorph
Ectomorph

242

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Computation of Your Basal Metabolic Rate

- Use the formulas in Steps 1 and 2 below to calculate your hourly basal metabolic rate.
- Use the formula in Step 3 below to compute the kilocalories (kcal) you require each day to meet your basal metabolic needs.

Write down your answers.

The formula below provides an estimated BMR.

- For women use a factor of 0.9 per kilogram (kg) of body weight.
- For men use a factor of 1.0 per kilogram (kg) of body weight.

Step 1 Change your weight in pounds to kilograms(kg):

_________ /2.2lb/kg = _________ kg

Example: (for a 140 lb. woman) 140 lb/2.2 = 64kg

Step 2 Multiply weight in kilograms by the BMR factor above for the individual's gender:

_________ x 0.9kcal/kg/hr = _________ kcal/hr (women)

_________ x 1.0kcal/kg/hr = _________ kcal/hr (men)

Example: 64 kg x .09 kcal/kg/hr= 57.28 kcal/hr

Step 3 Multiply the kilocalories (kcal) used in one hour by the hours in the day:

_________ kcal/hr x 24 hr/day = _________ kcal/day

Example: 57.28 x 24 hr/day = 1375 kcal/day is the energy that a 140 lb. woman needs to meet her basal metabolic needs.

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Activity Chart

Activity Level	Calories Used Per Hour
Sedentary Activities driving, lab work, reading, eating, watching tv	80 to 100 calories
Light Activities walking, washing clothes, cooking	110 to 160 calories
Moderate Activities walking moderately fast, standing activities, standing or sitting activities requiring vigorous arm work	170 to 240 calories
Vigorous Activities gardening, walking briskly, golfing, bowling	250 to 350 calories
Strenuous Activities tennis, skiing, dancing, aerobic exercises, swimming, basketball	350 or more calories

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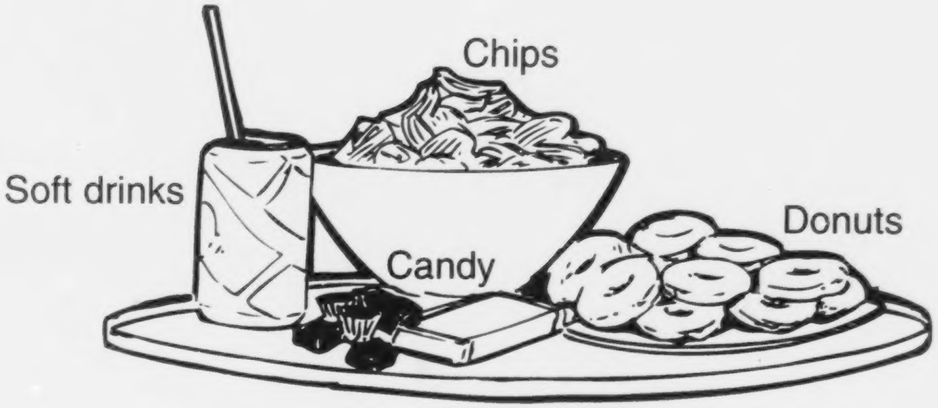
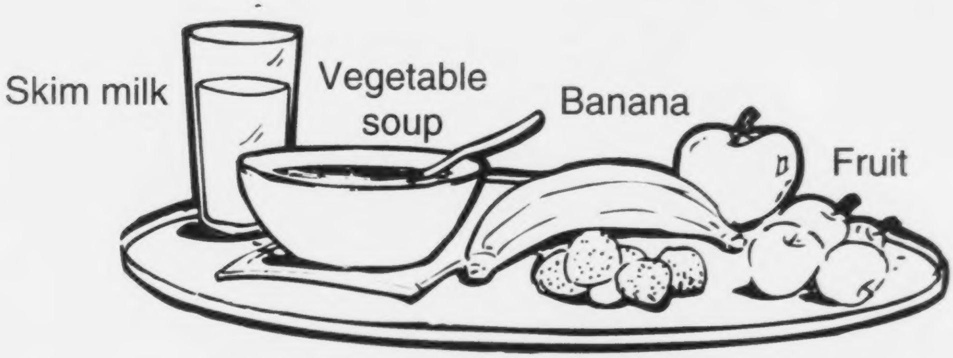
Nutrient Density


Chips
Soft drinks
Donuts
Candy

Low Nutrient - Dense Foods
"Empty calories" - High in calories and low in nutrients


Skim milk
Vegetable soup
Banana
Fruit

High Nutrient - Dense Foods
Rich in nutrients and low in calories

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Vegetarians

- VEGAN (strict vegetarian) – exclude all animal products. Many vegans do not even eat honey.
- LACTO – exclude meat, fish, poultry, and eggs, but include dairy products
- LACTO-OVO – exclude meat, poultry, and fish but include eggs and dairy products. Most vegetarians in the U.S. follow this kind of diet.
- Vegetarians have lower rates of heart disease and some forms of cancer than nonvegetarians.
- Vegetarian foods are the principal source of nutrition for most of the world.

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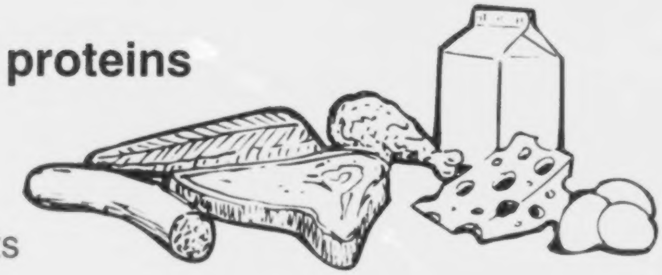
Food Sources of Proteins

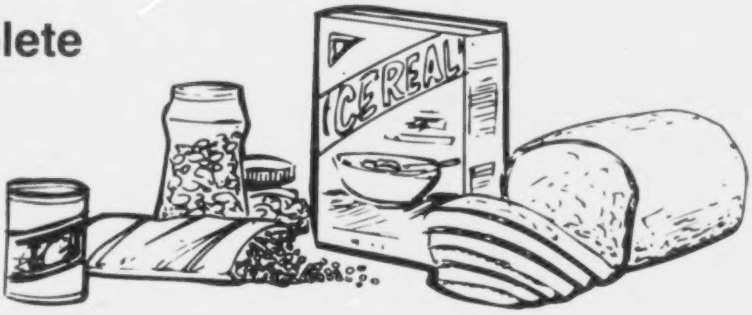
Complete proteins

- Fish
- Poultry
- Meat
- Dairy products
- Eggs



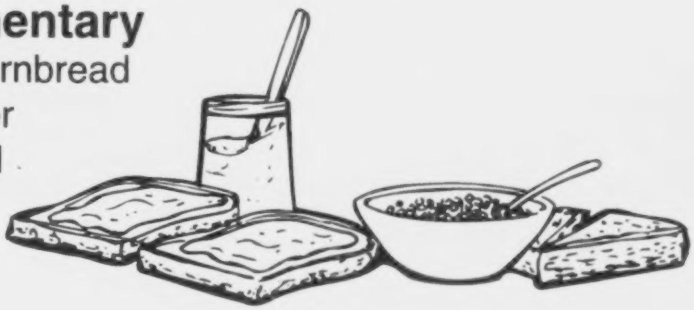
Incomplete

- Bread
- Cereal
- Nuts
- Peas
- Beans



Complementary

- Bean and cornbread
- Peanut butter
- Wheat bread



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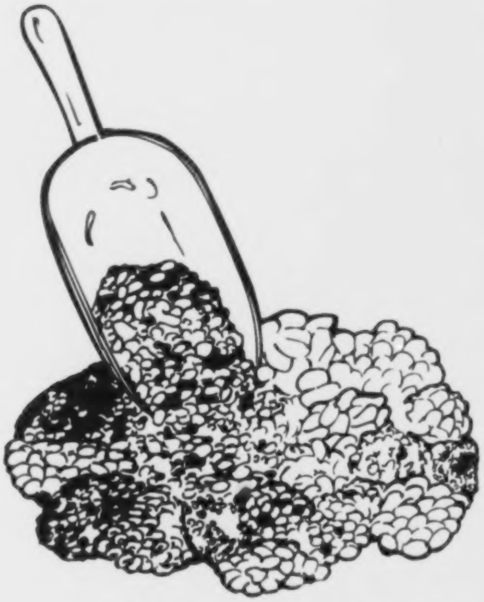
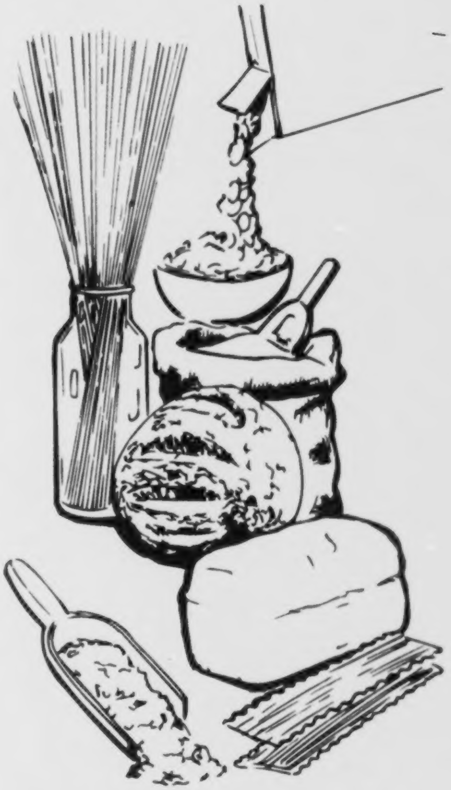
Complete Proteins Made From Plants



Legumes plus



Grains or Nuts, Seeds

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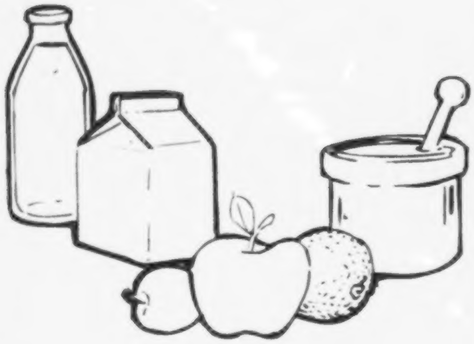
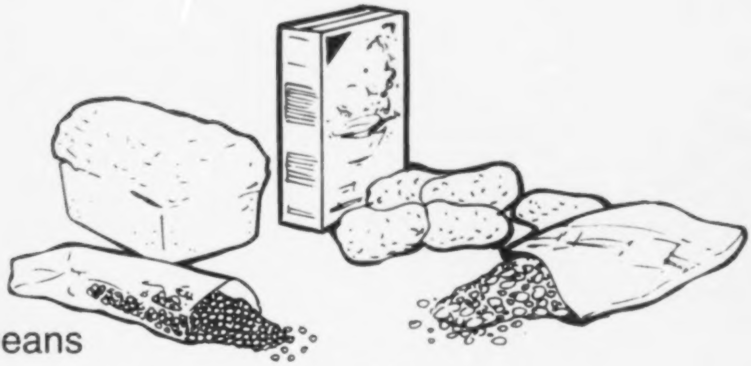
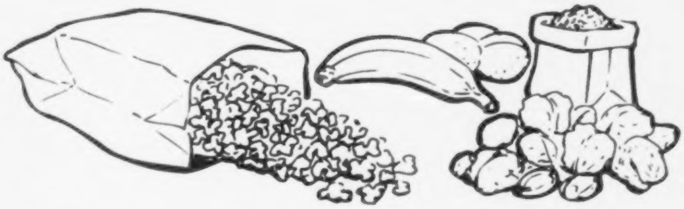
Food Sources of Carbohydrates



Sugars
Fruit
Fruit juice
Honey
Milk



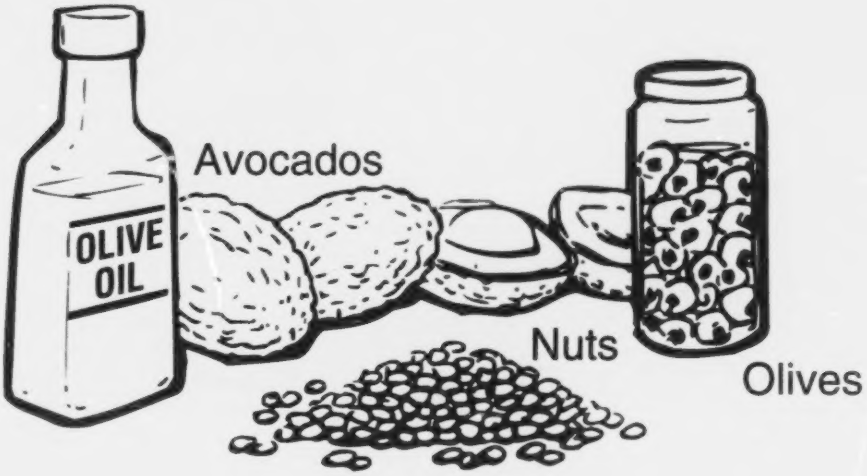
Starch
Bread
Cereal
Potatoes
Dried peas and beans

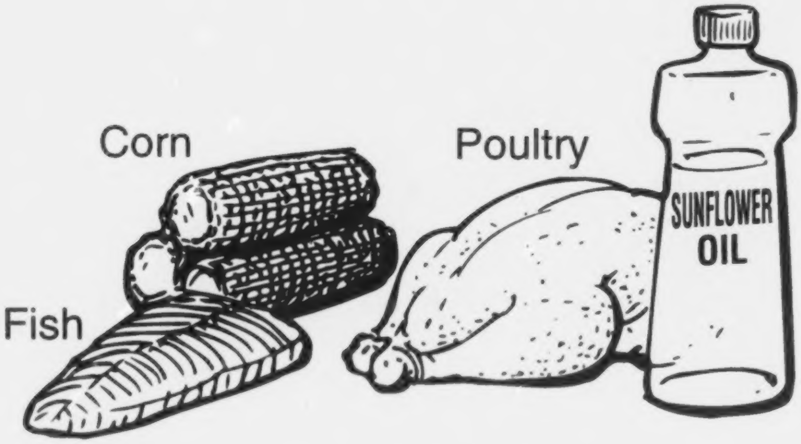


Fiber
Raw unpeeled
vegetables and fruit
Nuts and seeds
Popcorn

May be photocopied for student use.

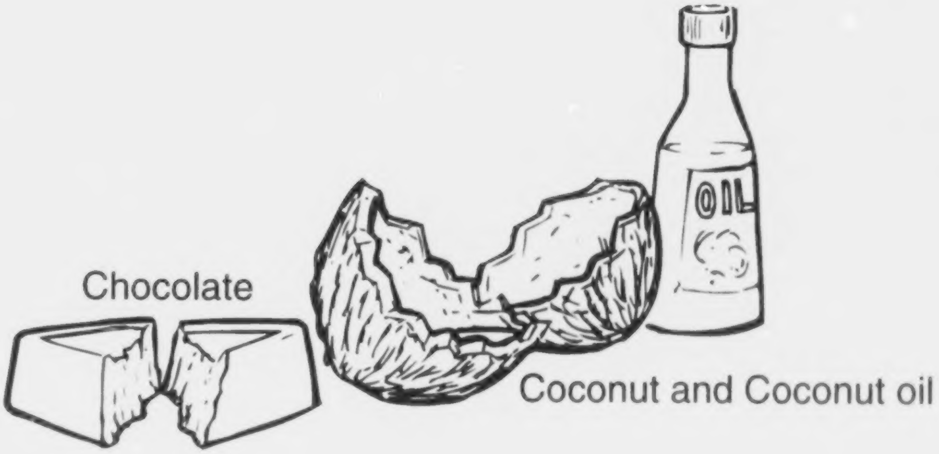
Food Sources of Unsaturated Fats

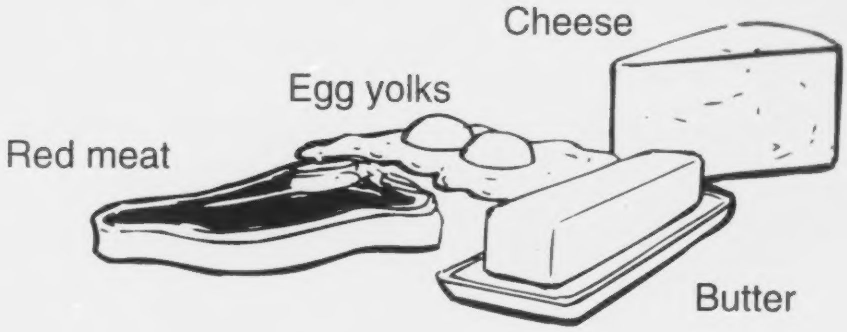

OLIVE OIL
Avocados
Nuts
Olives


Corn
Poultry
SUNFLOWER OIL
Fish

May be photocopied for student use.

Food Sources of Saturated Fats


Chocolate
OIL
Coconut and Coconut oil


Cheese
Egg yolks
Red meat
Butter

May be photocopied for student use.

WRITTEN TEST

EXAMINING FOOD, NUTRIENTS, AND THE BODY

2

Name ______________________ Date ________ Score ___

OBJECTIVE 1

Explain why food is needed by the body. Include 5 reasons in the blanks provided.

____

____

____

____

____

____

____

____

____

____

OBJECTIVE 2

Describe how the body turns food into energy. In the blanks provided, describe the function of each labeled part of the body used during digestion.

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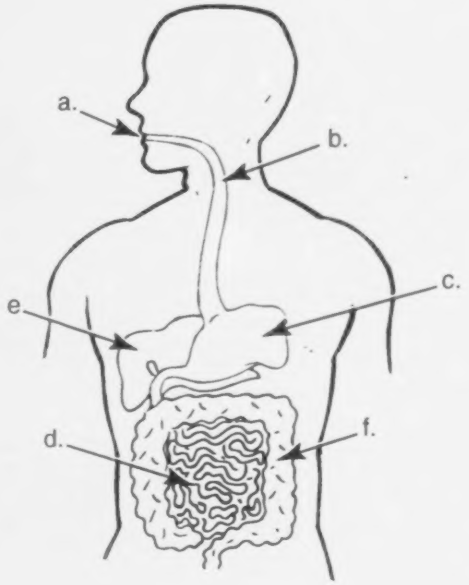

A. ______________________________

____

____

____

____

B. ______________________________

____

____

____

____

C. ______________________________

____

____

____

____

D. ______________________________

____

____

____

____

E. ____

____

F. ____

____

May be photocopied for student use.

OBJECTIVE 3

Explain the impact of factors that determine total calorie intake requirements. Answer the questions that follow in the blanks provided.

1. What happens to the body's metabolism with age?
2. What is the relationship between how much a person weighs and the energy/calories needed per unit of body weight?
3. Who generally have more muscle tissue – men or women?
4. Who generally have more body fat – men or women?
5. Which burns more calories – muscle tissue or fat tissue?
6. What type of physical activities burn more calories than sedentary activities?
7. Does a high BMR require more or less energy per unit of body weight than a low BMR?
8. How do extreme temperatures affect energy needs?

OBJECTIVE 4

Explain the impact of factors that influence an individual's basal metabolic rate. Answer the questions that follow in the blanks provided.

1. What is the relationship between body build and the BMR per unit of body weight?

May be photocopied for student use.

2. What happens to the BMR as the body ages?

____

3. Who have more lean tissue – men or women?

____

4. Will a well-nourished person have a higher or lower BMR than an undernourished person?

____

5. What is the affect of adrenalin on the BMR?

____

OBJECTIVE 5 **Evaluated on Assignment Sheet 1.**

OBJECTIVE 6 **Match the nutrients in food to their descriptions.** Write the letter of the answer in each blank.

A. carbohydrates
B. fats
C. fiber
D. minerals
E. proteins
F. starches
G. sugars
H. vitamins
I. water

_____ 1. Elements used by the body in its regulatory functions and in forming some of its structures

_____ 2. Simple carbohydrates

_____ 3. Chemical compounds that consist of carbon, oxygen, hydrogen, and nitrogen

_____ 4. The natural structural part of a plant that cannot be digested

_____ 5. Chemical compounds that are converted by the body into glucose and glycogen

_____ 6. Occur naturally in vegetables

_____ 7. Made up of amino acids

_____ 8. A clear, colorless liquid composed of hydrogen and oxygen

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OBJECTIVE 7

Distinguish among the functions of nutrients. Write the letter of the correct answer in the blank before each statement.

A. water
B. carbohydrates
C. fats
D. glucose
E. proteins
F. vitamins
G. minerals

_____ 1. Add flavor to food

_____ 2. Provide a quick source of energy for the body

_____ 3. Prevent fats from being inefficiently combined with oxygen to be burned by the body cells for fuel and energy

_____ 4. Keep tissue proteins (such as that found in muscle) from being broken down by the body for use as an energy source

_____ 5. Are a more concentrated source of heat and energy than carbohydrates or proteins

_____ 6. Helps change food into nutrients

_____ 7. Help the body build new cells and repair old ones

_____ 8. Used by the body for many different processes

_____ 9. Transports nutrients to the cells

_____ 10. Become part of the body: bones, tissues and fluids

_____ 11. Are used for energy if the body does not get enough carbohydrates or fat

_____ 12. Help make antibodies that fight infection

_____ 13. Do not become part of or build any part of your body

_____ 14. Help speed the chemical processes in your body

OBJECTIVE 8

Explain nutrient density.

- ____
- ____
- ____

May be photocopied for student use.

- ______________________________
- ______________________________
- ______________________________

OBJECTIVE 9

Distinguish between complete and incomplete proteins. Write an "X" in the blank before each statement that is correct.

_____ 1. Complete proteins contain the eight essential amino acids.

_____ 2. Incomplete proteins are found mostly in foods of animal origin.

_____ 3. Complete proteins build and repair tissue.

_____ 4. Complete proteins contain only some of the essential amino acids.

_____ 5. Incomplete proteins cannot maintain life or support growth by themselves.

_____ 6. Incomplete proteins are found mainly in foods of plant origin.

_____ 7. Complete proteins are foods that taste good together.

OBJECTIVE 10

Identify food sources of complete and incomplete proteins. Write a "C" in the blank in front of the source of a complete protein and an "I" in the blank in front of the source of an incomplete protein.

_____ 1. cereal

_____ 2. fish

_____ 3. dried peas

_____ 4. meat

_____ 5. eggs

_____ 6. bread

_____ 7. poultry

May be photocopied for student use.

_____ 8. nuts

_____ 9. beans

_____ 10. dairy products

OBJECTIVE 11

List principal food sources of carbohydrates. List three sources of each type of carbohydrate in the blanks provided.

1. sugar

____

____

____

2. starch

____

____

____

3. fiber

____

____

____

OBJECTIVE 12

Evaluated on Assignment Sheet 2.

OBJECTIVE 13

Distinguish between saturated and unsaturated fats. Write an "S" beside each statement that applies to saturated fats. Write a "U" beside each statement that applies to unsaturated fats.

_____ 1. Contain all the hydrogen they can hold

_____ 2. Can lower blood cholesterol levels when included in the diet

_____ 3. Can be oily fats that have been converted to solids by the addition of hydrogen (hydrogenation)

May be photocopied for student use.

____ 4. Can be monounsaturated or polyunsaturated

____ 5. Are usually in liquid form at room temperature

____ 6. Are found in some vegetable fats (coconut, palm, and palm kernel oil)

____ 7. May contain less essential fatty acids if hydrogen has been added to the product

____ 8. Have less hydrogen

____ 9. Usually of animal origin (meat and dairy products)

____ 10. Are usually of plant origin

____ 11. Are usually solid at room temperature

____ 12. Can lower blood cholesterol levels when included in the diet

OBJECTIVE 14

Identify food sources of saturated and unsaturated fats. Write an "S" in the blank in front of a saturated fat and a "U" in front of an unsaturated fat. Write "SU" in front of a food source that may contain both saturated and unsaturated fats.

____ 1. Semisoft margarine made from vegetable oils

____ 2. Coconut and coconut oil

____ 3. Palm oil

____ 4. Vegetable oils that have not been hydrogenated

____ 5. Hydrogenated vegetable shortenings

____ 6. Avocados and a variety of nuts

____ 7. Red meats

____ 8. Egg yolks

____ 9. Corn, sunflower, cottonseed, sunflower, and soybean oils

____ 10. Butter

____ 11. Some types of fish

May be photocopied for student use.

_____ 12. *Ice cream*

_____ 13. Whole milk cheese

_____ 14. Poultry

_____ 15. Olive, canola and peanut oils

_____ 16. Cream or whole milk

_____ 17. Lard

_____ 18. Chocolate

OBJECTIVE 15 **Evaluated on Assignment Sheet 3.**

OBJECTIVE 16 **Distinguish between fat-soluble and water-soluble vitamins.** Write an "F" in the blanks before fat-soluble vitamins and statements that apply to them and a "W" before water-soluble vitamins and statements that apply to them. One statement will apply to both fat-soluble and water-soluble vitamins.

_____ 1. Niacin (nicotinic acid)

_____ 2. Vitamin A (retinol)

_____ 3. Vitamin B12 (cyanocobalamin)

_____ 4. Vitamin K (phytonadione)

_____ 5. Vitamin B6 (pyridoxine hydrochloride)

_____ 6. Vitamin C (ascorbic acid)

_____ 7. Vitamin B2 (riboflavin)

_____ 8. Folic acid

_____ 9. Vitamin E (tocopherol)

_____ 10. Biotin

_____ 11. Vitamin B1 (thiamine)

_____ 12. Vitamin D (calciferol)

_____ 13. Pantothenic acid

May be photocopied for student use.

_____ 14. Are best preserved in prepared fruits and vegetables by cooking these foods for a short time in a covered container with small amounts of boiling water

_____ 15. Are not absorbed properly by the digestive tract unless a sufficient amount of fatty foods are included in the diet

_____ 16. Can be lost in food when poor storage techniques result in wilting and dehydration of fresh items

_____ 17. Are not destroyed in foods by ordinary cooking methods

_____ 18. Must be transported to various body sites in blood lipids

_____ 19. Are easily destroyed in foods by ordinary cooking methods

_____ 20. Can be stored in the body and cause toxic (poisonous) effects if excess amounts are taken

OBJECTIVE 17

Identify food sources of fat-soluble and water-soluble vitamins.

1. Which of the following B-complex vitamins is not available from plant sources?

   a. B1
   b. B2
   c. B6
   d. B12

2. Which vitamins are lost or destroyed if exposed to sunlight?

   a. C, D, and E
   b. B1, B2, B3
   c. niacin, B12
   d. B6, B2

3. Egg yolks would be a good source of which of the following vitamins?

   a. vitamins A, D, and E
   b. vitamins B1, B2, and B6
   c. vitamins K, C, and B12

May be photocopied for student use.

4. Which of the following groups of foods would be the best source of most of the B-complex vitamins?

   a. raw vegetables
   b. yellow fruits
   c. animal fats
   d. whole grain and enriched cereals

5. How is vitamin C best obtained?

   a. fresh, raw, fruits and vegetables
   b. cooked vegetables
   c. egg yolks and organ meats
   d. fortified milk

6. Foods that are high in vitamin B12 content include which of the following?

   a. cantaloupes, oranges, and watermelons
   b. avocados, bananas, and potatoes
   c. organ meats, eggs and lean meat
   d. walnuts, peanuts, and legumes

OBJECTIVE 18 **Evaluated on Assignment Sheet 4.**

OBJECTIVE 19 **State food sources of minerals.** Name two food sources for each of the minerals listed.

1. calcium – ______________________________

   ____

2. phosphorus – ______________________________

   ____

3. magnesium – ______________________________

   ____

4. sodium – ______________________________

   ____

5. chlorine – ______________________________

   ____

May be photocopied for student use.

6. potassium – ____

____

7. iodine – ____

____

8. zinc – ____

____

9. iron – ____

____

OBJECTIVE 20

Define the impact of nutrient levels in the diet. Write "E" for Excess or "D" for Deficiency in the first blank of each item. Write the name of the nutrient in the second blank of each item.

1. Tooth decay and gum disease indicate a/an _____ of

   ______________.

2. Constipation, intestinal diseases indicate a/an _____ of

   ______________.

3. Heart disease and high blood pressure may indicate a/an

   _____ of ______________.

4. Poor muscle development may indicate a/an _____ of

   ______________.

5. Weight loss, kidney stones, lung damage, deafness may

   indicate a/an _____ of ______________.

6. Diarrhea, kidney and bladder infections may indicate a/an

   _____ of ______________.

7. Eyes sensitive to light, night blindness, stunted growth may

   indicate a/an _____ of ______________.

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8. A disease called Rickets that causes crooked legs and breast bones may indicate a/an _____ of ______________.

9. Swelling of heart, leg cramps; numbness in hands and feet may indicate a/an _____ of ______________.

10. The removal of calcium from bones may indicate a/an _____ of ______________.

11. High blood pressure and edema (swelling) may indicate a/an _____ of ______________.

12. Osteoporosis (bone loss), poorly formed bones and teeth, and high blood pressure may indicate a/an _____ of ______________.

13. Muscle tremors and shaking (common in alcoholics) may indicate a/an _____ of ______________.

14. Goiter (large swelling of thyroid gland in neck) may indicate a/an _____ of ______________.

15. Dehydration, dry mouth, and fatigue may indicate a/an _____ of ______________.

OBJECTIVE 21 **Evaluated on Assignment Sheet 5.**

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ALCOHOL AND NUTRITION

One of the health hazards of alcohol abuse is malnutrition. Alcohol depresses the appetite, so heavy drinkers tend to eat poorly. Their energy comes from the empty calories (7 calories per gram) of alcohol, so few essential nutrients are consumed.

Alcohol also attacks the lining of the stomach, so nutrient digestion is poor. In addition, ulcers may occur. When alcohol reaches your stomach it needs no digestion; it is absorbed right through the stomach walls. It can reach the brain within a minute. Absorption of the B-complex vitamins, magnesium, and potassium is also affected and abuse of alcohol may cause a deficiency of these vitamins and minerals.

Alcohol is a narcotic that affects every organ of the body. The most dramatic effect is on the liver. The major way the blood is cleared of alcohol is through metabolism by the liver; only the liver cells can metabolize alcohol. When alcohol is present, the liver does not do its normal job as it should (to metabolize fatty acids), so the fatty acids tend to accumulate in the liver. The liver function becomes impaired and it begins to deteriorate; the cells eventually begin to die.

The presence of alcohol also alters amino acid metabolism in the liver cells. Synthesis of proteins important to the immune system slows down and weakens the body's defenses against infection. Protein deficiency can develop and blood lipid levels may increase. Alcohol also leaves the body through urination. A large amount of water is lost with frequent urination and with it important minerals such as magnesium, potassium, calcium, and zinc. As you will learn later in this unit, these minerals are vital to many chemical reactions in the body.

Drinking large amounts of alcohol will impair your nutritional health because absorption of the nutrients is hindered, metabolism is altered and there is an increase in the excretion of many important nutrients when alcohol is present.

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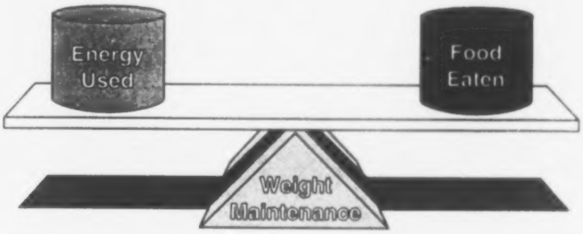
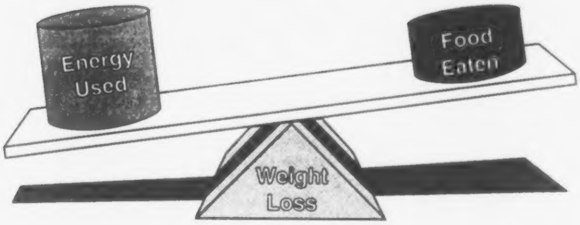
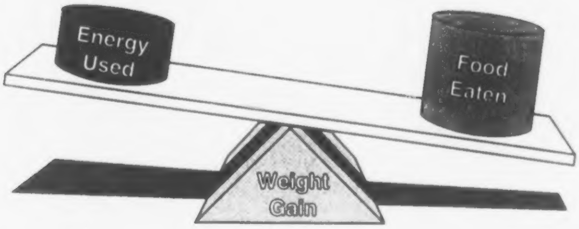
OBESITY

All living organisms take in oxygen, use it to burn food for energy and growth, and then excrete the wastes. This process is known as *metabolism.* The amount of energy (calories) used by the body when at rest is referred to as *basal metabolism.* Basal metabolism is the amount of energy needed to sustain life.

Calories measure the heat and energy value of foods. When you consume too many calories, the excess energy value is stored in the body primarily as structural protein and adipose tissue. In others words, if you take in more calories than you need, you gain weight.


Energy Used
Food Eaten
Weight Maintenance


Energy Used
Food Eaten
Weight Loss


Energy Used
Food Eaten
Weight Gain

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BEST COPY AVAILABLE

Obesity is defined as weighing 20% over desirable standards. *Morbid obesity* is characterized by weighing 100 pounds above the standard weight for a person's height, age, and sex. Simple weight can be deceiving. For example, an athlete may weigh more than the standard because muscle weighs more than fat. Obesity may be caused by genetic factors or psychologic and social factors.

It is possible that a restricted diet may actually result in weight *gain*. Metabolism may be slowed down so much that the body responds by conserving energy. An individual who wants to gain weight can decrease activity and decrease caloric intake. Safe, gradual weight loss is achieved through behavior modification, including regular exercise and decreased intake of fats and "empty" calories. For drastic cases, surgeries such as gastric partitioning may be considered.

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COMPUTATION OF YOUR BASAL METABOLIC RATE

- Use the formulas in Steps 1 and 2 below to calculate your hourly basal metabolic rate.
- Use the formula in Step 3 below to compute the kilocalories (kcal) you require each day to meet your basal metabolic needs.

Write down your answers.

The formula below provides an estimated BMR.

- For women use a factor of 0.9 per kilogram (kg) of body weight.
- For men use a factor of 1.0 per kilogram (kg) of body weight.

Step 1 Change your weight in pounds to kilograms(kg):

_________ /2.2lb/kg = _________ kg

Example: (for a 140 lb. woman) 140 lb/2.2 = 64kg

Step 2 Multiply weight in kilograms by the BMR factor above for the individual's gender:

_________ x 0.9kcal/kg/hr = _________ kcal/hr (women)

_________ x 1.0kcal/kg/hr = _________ kcal/hr (men)

Example: 64 kg x .09 kcal/kg/hr= 57.28 kcal/hr

Step 3 Multiply the kilocalories (kcal) used in one hour by the hours in the day:

_________ kcal/hr x 24 hr/day = _________ kcal/day

Example: 57.28 x 24 hr/day = 1375 kcal/day is the energy that a 140 lb. woman needs to meet her basal metabolic needs.

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LAP SHEET

HANDLING AND STORING FOOD

3

Name ______________________________

Check the blank as you complete each step.

1. Take	_____	the pretest provided by your instructor. Have your instructor evaluate your completed test. After your test has been evaluated, follow your instructor's recommendations.
2. Read	_____	the introduction, unit objective, and specific objectives.
3. Do	_____	the focus assignments.
4. Stop	_____	and have your instructor evaluate your work from the focus assignment. After your work has been evaluated, follow your instructor's recommendations.
5. Study	_____	the Information Sheet, objective 1.
Optional: Make	_____	a poster about the microorganisms and enzymes showing each as beneficial and/or hazardous.
6. Study	_____	the Information Sheet, objective 2.
Optional: Research	_____	the types of food additives and why they are used. Write a one-page summary of your findings.
7. Study	_____	the Information Sheet, objective 3.
Optional: Look	_____	for several food products with different types of open dating.
Optional: Prepare	_____	a poster using packaging from dated food products. The poster should use at least one of each type of open dating.
8. Study	_____	the Information Sheet, objective 4.

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Optional: Write	_____	a short paper on how food is stored in your home. Include ways on how to improve your current storage practices.
Optional: Research	_____	how people stored food in the 1700's, 1800's and early 1900's. Write a one-page summary of your findings.
9. Study	_____	the Information Sheet, objective 5.
10. Do	_____	Assignment Sheet 1.
11. Stop	_____	and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.
12. Study	_____	the Information Sheet, objective 7.
Optional: Read	_____	newspaper or magazine articles about food-related illnesses.
13. Study	_____	the Information Sheet, objective 8.
14. Study	_____	the Information Sheet, objective 9.
Optional: Analyze	_____	the food lab at your school for safety hazards. List the hazards and provide them to your instructor.
Optional: Construct	_____	a chart of how foods become contaminated and ways to prevent contamination.
Optional: Make	_____	a safety and sanitation poster for class display.
Optional: Write	_____	a short paper describing a layout or storage problem found in your kitchen. Draw a floor plan and come up with possible solutions to the problem.
15. Study	_____	the Information Sheet, objective 10.
Optional: Interview	_____	a food service worker about food service rules, regulations, and handling of food. Present your results to your instructor.

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16. Do _____ Assignment Sheet 2.

17. Stop _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

18. Do _____ Assignment Sheet 3.

19. Stop _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

20. Study _____ the Information Sheet, objective 13.

Optional: Create _____ a chart with the following headings: paper, perforated-film bags, shrink film, opaque film, vacuum and nitrogen back-filled, and moisture-proof packaging. Look at the kinds of food packaging you have at home and write the name of the food that uses a particular packaging material under each heading.

Optional: Interview _____ a grocery store manager. Ask him/her to explain how packaging affects the amount and degree of damage to food products the store receives.

21. Do _____ Assignment Sheet 4.

22. Stop _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

23. Take _____ the posttest provided by your instructor. Have your instructor evaluate your completed test. After your test has been evaluated, follow your instructor's recommendations.

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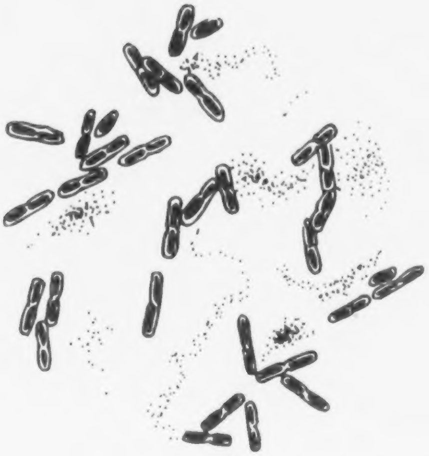
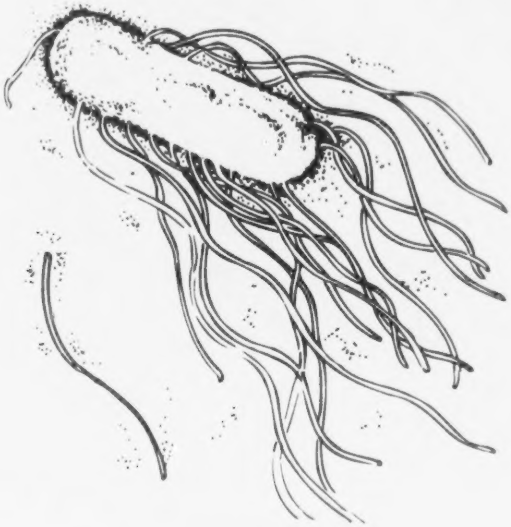
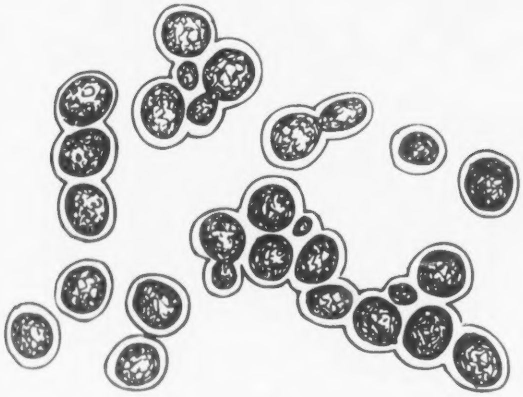
Types of Bacteria



Perfringens



Salmonella



Yeast

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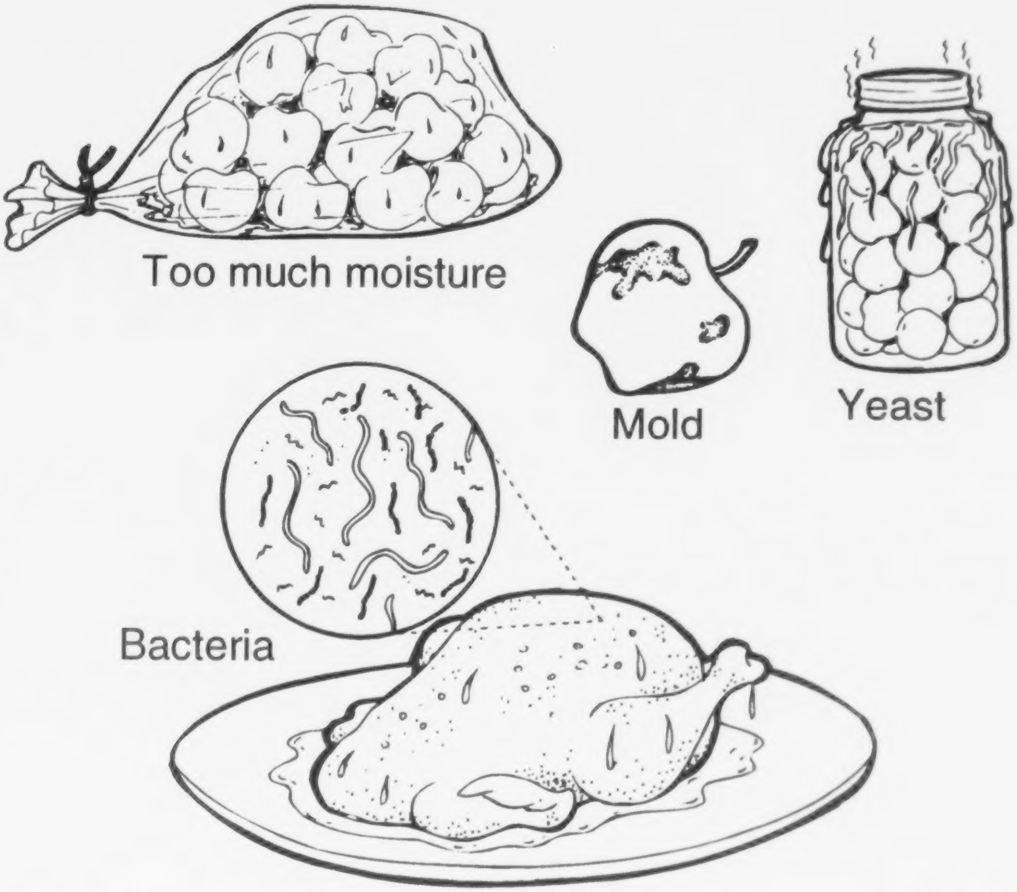
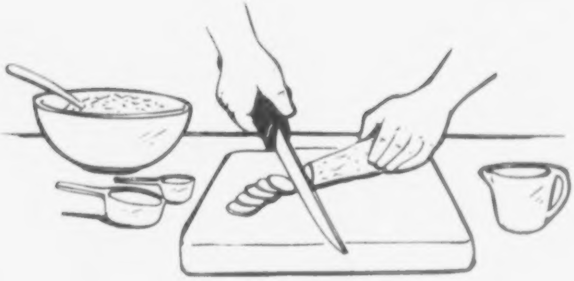
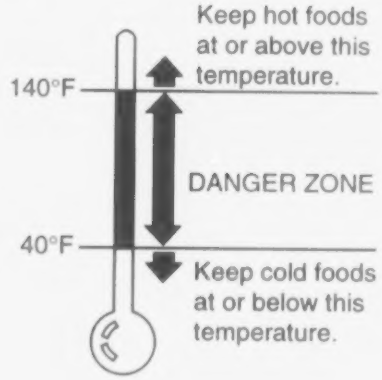
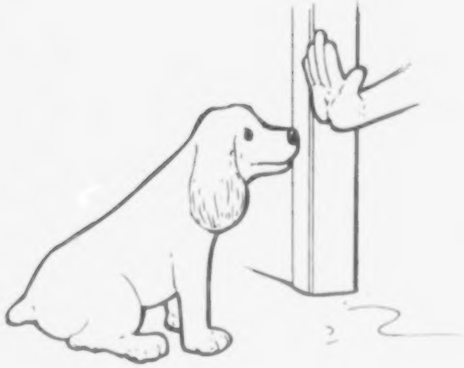
What Makes Food Spoil?

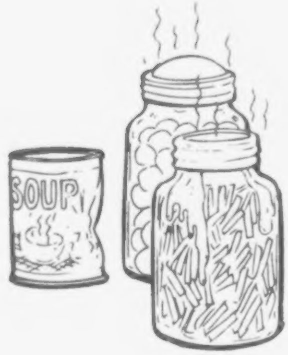

Too much moisture
Yeast
Mold
Bacteria

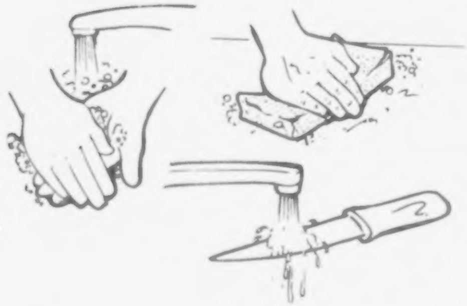
Preventing Food-Borne Illnesses

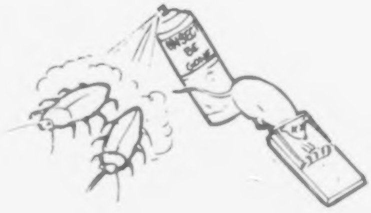



Keep hot foods at or above this temperature.
140°F
DANGER ZONE
40°F
Keep cold foods at or below this temperature.









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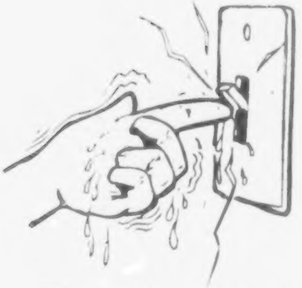
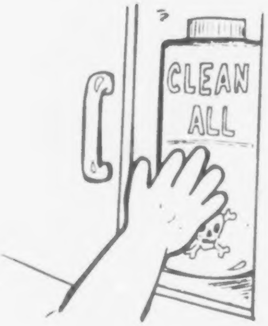
TM 4

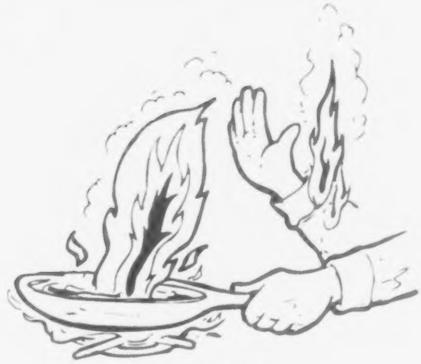
Common Kitchen Accidents



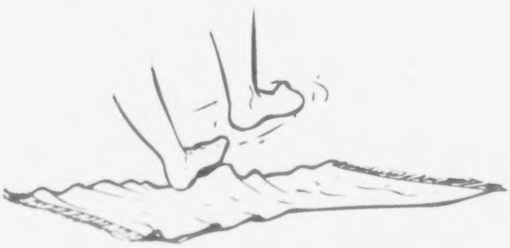
Electric shock



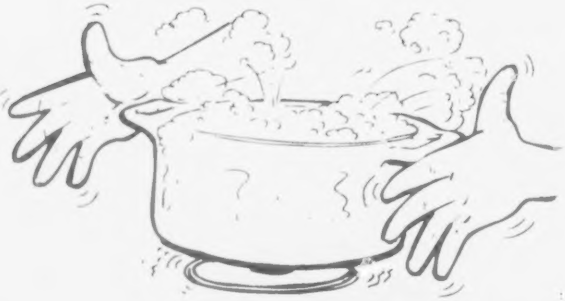
Poisoning



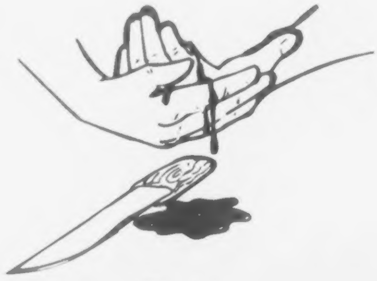
Fire



Falls

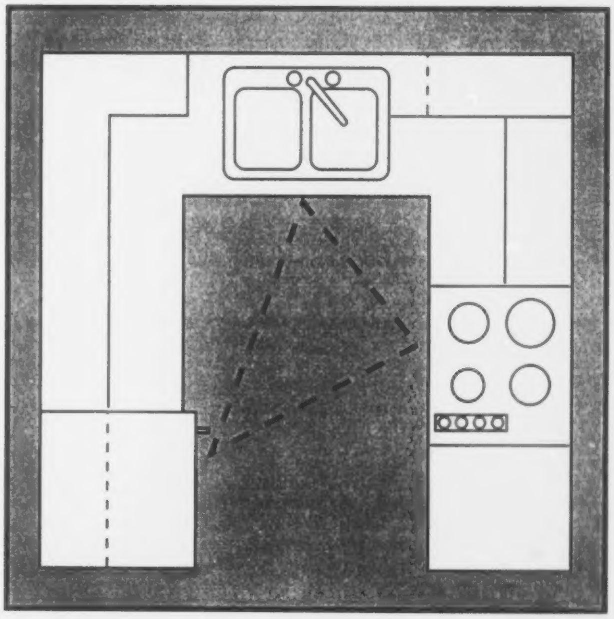


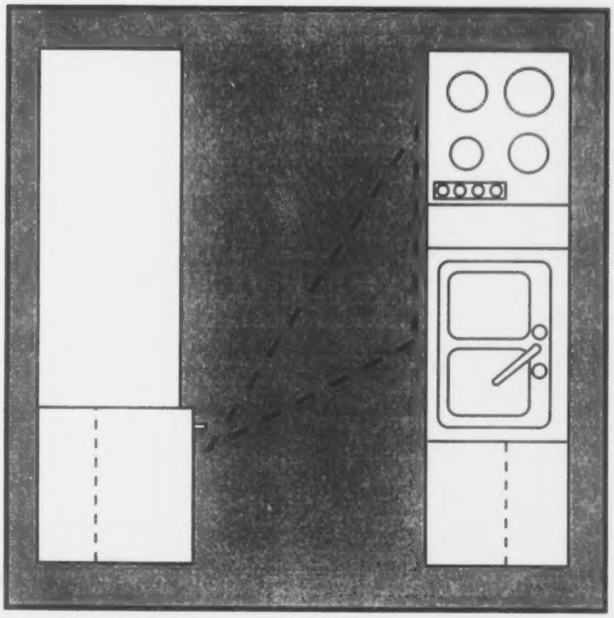
Burns



Cuts

Work Triangles





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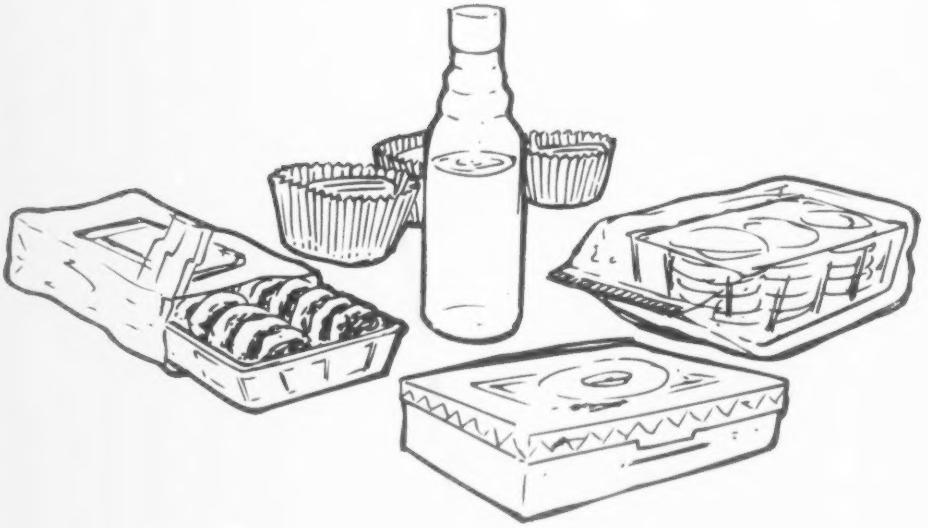
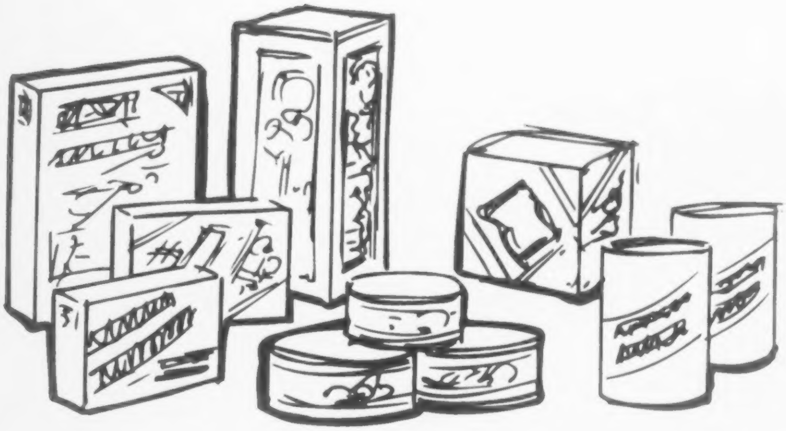
TM 6

Product Packaging





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WRITTEN TEST

HANDLING AND STORING FOOD

3

Name ______________________ Date ________ Score ___

OBJECTIVE 1

Distinguish among the causes of food spoilage. Write the correct letter in each blank.

A. Bacteria
B. Molds
C. Yeast
D. Enzyme action

_____ 1. One-celled microorganisms

_____ 2. One-celled plant or fungi

_____ 3. Microscopic plant

_____ 4. Softens the texture, changes the color, and impairs the flavor

_____ 5. Cause unpleasant odor and flavor

_____ 6. Give off waste products called toxins which may be poisonous

_____ 7. Causes some foods to ferment

_____ 8. Microorganisms that grow as a fluffy, fuzzy patch on food

_____ 9. Causes fruits and vegetables to ripen even after picking

_____ 10. Easily destroyed by boiling

_____ 11. Multiply by sending out buds

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OBJECTIVE 2

State factors affecting the shelf life of food products. For each definition, write the factor on the blank line below.

Dehydration, canning, irradiation, drying, freezing, smoking

1. ______________________________

Protects product from light, air (oxygen), moisture, and heat

2. ______________________________

Used to improve and protect the flavor of food

3. ______________________________

Examples include bruises and cuts; shortens the shelf life

4. ______________________________

The longer the food is kept before being consumed, the more nutrients it loses

5. ______________________________

Causes processed foods to lose quality and nutrients more quickly

6. ______________________________

Used to keep foods fresh and prevent spoilage

7. ______________________________

OBJECTIVE 3

Distinguish among the types of open dating. Write the correct letter in each blank.

A. Pack date
B. Pull date
C. Expiration date
D. Quality assurance date

_____ 1. Followed by the words "best if used by"

_____ 2. Day the food was processed or packaged

_____ 3. Follows the words "sell by"

_____ 4. The last date the food should be used

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_____ 5. Usually used on products with a long shelf life

_____ 6. Does not mean the product cannot be used after that date

_____ 7. The last day a store can sell the item as fresh

_____ 8. Tells how old the food is when you buy it

_____ 9. Allows for some storage time in the home refrigerator

OBJECTIVE 4

Match types of foods to their correct storage method. Write the correct letter in each blank.

A. Dry storage
B. Refrigerator storage
C. Freezer storage

_____ 1. Unused portions of canned food (transfer to sealed container)

_____ 2. Onions, potatoes, and unripe fruit

_____ 3. Fresh produce to be used in the future

_____ 4. Dairy products and eggs

_____ 5. Packaged food such as grain products, dried beans, and peas

_____ 6. Home-cooked food to be used in the future

_____ 7. Grain products that are to be kept more than 2 months

_____ 8. Fresh meat, poultry, and fish that must be kept longer than a few days

_____ 9. Unopened cans, jars, and bottles that do not require refrigeration

_____ 10. Perishable foods such as fresh ripe fruits and most vegetables

_____ 11. Fresh and cured meats, poultry, and fish

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OBJECTIVE 5

State guidelines for storing foods. State the guideline related to the key word(s) provided.

Dry storage

1. temperature range – ______________________________

____

2. chemicals – ______________________________

____

3. sinks – ______________________________

____

Refrigerator storage

4. temperature range – ______________________________

____

5. loosely – ______________________________

____

6. crisper – ______________________________

____

7. within 1 to 2 days – ______________________________

____

8. within 3 to 5 days – ______________________________

____

Freezer storage

9. blanch – ______________________________

____

10. head space – ______________________________

____

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11. wrapping – ______________________________

____

12. inventory – ______________________________

____

OBJECTIVE 6

Evaluated on Assignment Sheet 1.

OBJECTIVE 7

State factors contributing to food-borne illnesses. State the factor related to each item by writing the factor on the blank line provided.

Thawing frozen food at room temperature

1. ______________________________

Uncovered food left out

2. ______________________________

Failure to discard spoiled food and trash

3. ______________________________

Unclean hands and clothes

4. ______________________________

Unsanitary tools and equipment

5. ______________________________

Unnecessary use of hands during preparation

6. ______________________________

Raw foods stored in direct contact with shelves or other food

7. ______________________________

Cross contamination

8. ______________________________

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OBJECTIVE 8

Match common food-borne illnesses to their descriptions. Place the correct letters in the blanks provided.

A. Staphylococcal poisoning	E. Botulism
B. Giardiasis	F. Trichinosis
C. Salmonellosis	G. Infectious hepatitis
D. Perfringen poisoning	

_____ 1. onset 4 to 36 hours after eating; caused by eating toxin-contaminated food such as canned corn, beans, soups, asparagus, tuna, chicken, and other low-acid foods

_____ 2. onset 8 to 12 hours after eating; caused by eating contaminated food such as meats and meat products stored between 120°F and 130°F; likely when large amounts of food are handled improperly

_____ 3. onset 8 to 12 hours after eating; caused by drinking contaminated water or eating uncooked food

_____ 4. onset from 3 to 6 weeks; a viral disease carried in contaminated water and sewage; caused by eating raw or under cooked contaminated shellfish such as oysters and clams

_____ 5. onset 2 to 48 hours after eating; caused by contact with a carrier eating contaminated food such as raw meats, poultry, milk, and other dairy products, yeast, coconut, and chocolate; carried by rodents, insects and pets such as turtles, birds, dogs, and cats

_____ 6. caused by a parasitic round worm that can be found in uncooked pork

_____ 7. onset 1/2 to 8 hours after eating; caused by eating toxin-contaminated food such as meats, poultry, egg products, tuna, potato and macaroni salads, and creme-filled pastries; transmitted by food handlers who carry the bacteria

OBJECTIVE 9

Select from a list guidelines for maintaining kitchen safety, sanitation, and efficiency. Write an "X" in the blank before each guideline.

_____ 1. Keep kitchen floors clean and dry.

_____ 2. Keep the lids on cans.

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_____ 3. Keep knives dull; they are safer than sharp ones.

_____ 4. Always use a cutting board.

_____ 5. Slant blade toward you while cutting.

_____ 6. Open lids of pots and pans away from you.

_____ 7. Use moist potholders; they help reduce the heat.

_____ 8. Eat food quickly and in large bites to avoid food poisoning.

_____ 9. Keep poisonous substances in their original containers.

_____ 10. Pull the plug (not the cord) to disconnect appliances.

_____ 11. Wash tools and utensils that have been used with raw foods after using them on cooked food.

_____ 12. Use separate towels for dishes and hands.

_____ 13. Use the work triangle to optimize work flow.

_____ 14. Avoid grounding kitchen outlets.

_____ 15. Work flow is impeded by an island or peninsula.

OBJECTIVE 10

Select from a list proper food handling and personal sanitation practices. Write an "X" in the blank before each proper practice.

_____ 1. Keep refrigerator and freezer clean.

_____ 2. Thaw foods at room temperature.

_____ 3. Partially cook meat, poultry, or fish for continued cooking the next day.

_____ 4. Dispose of any bulging, leaking, or rusting container of canned food.

_____ 5. Taste any questionable food before throwing it away.

_____ 6. Use defrosted foods promptly.

_____ 7. Use one towel for wiping hands and dishes.

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_____ 8. Keep pets out of the kitchen.

_____ 9. Wash hands with hot, soapy water after handling raw meat.

_____ 10. Do not smoke or eat while preparing food.

OBJECTIVE 11 **Evaluated on Assignment Sheet 2.**

OBJECTIVE 12 **Evaluated on Assignment Sheet 3.**

OBJECTIVE 13 **List factors influencing food packaging requirements**. List seven (7) of the factors.

1. ______________________________
2. ______________________________
3. ______________________________
4. ______________________________
5. ______________________________
6. ______________________________
7. ______________________________

OBJECTIVE 14 **Evaluated on Assignment Sheet 4.**

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EFFECT OF LIGHT ON MILK

Milk is highly perishable. It requires care in processing, handling, and packaging to maintain its flavor and nutrient content. If milk is exposed to light, it can develop flavor changes and suffer nutrient losses. Losses of Riboflavin (B2), Vitamin A, Vitamin D, and Vitamin C are thought to be directly related to the amount of light to which milk is exposed. All types of light can affect milk: sunlight, fluorescent, and incandescent. This can be a problem when milk is exposed to light in supermarket display cases or when it is left out at home.

Exactly how much the flavor of milk changes or how many nutrients may be lost is not clear. Results from recent studies do not consistently agree on the effect extended exposure to light has on milk. It is agreed, however, that an effect exists and that skim and low-fat milk seem to be affected more than whole milk. The fat content affords some protection against the damaging effects of ultraviolet rays.

Milk packaging materials may be very important in protecting milk from light-induced changes. The opacity of the package seems to make a difference. Losses can be minimized with packaging that blocks out light. In the data from some studies, the milk in opaque paper cartons retained more vitamin content and flavor than did milk in clear or translucent containers. Containers used most often today are translucent polyethylene jugs and paperboard cartons. Translucent polyethylene containers make up 68% of all milk containers sold.

Retail stores can minimize the effects of light on milk by reducing the light levels in display cases and by rotating the stock to reduce constant exposure to light. Consumers can also help protect their purchases by storing milk as soon as possible after buying it and by using the milk within a reasonable time.

Packaging plays a role in vitamin and flavor loss in other foods besides milk. The trend for clear packaging may not be the best for nutrition retention in foods. Consumers should be aware that some food and beverages should not be in clear or translucent packages, since these products contain vitamins that are destroyed by light.

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LAP
SHEET

USING RECIPES

4

Name ______________________________

Check the blank as you complete each step.

1. **Take**	_____	the pretest provided by your instructor. Have your instructor evaluate your completed test. After your test has been evaluated, follow your instructor's recommendations.
2. **Read**	_____	the introduction, unit objective, and specific objectives.
3. **Do**	_____	the focus assignments.
4. **Stop**	_____	and have your instructor evaluate your work from the focus assignment. After your work has been evaluated, follow your instructor's recommendations.
5. **Study**	_____	the Information Sheet, objective 1.
Optional: Evaluate	_____	actual recipes to identify the elements that may be missing.
Optional: Write	_____	a short paragraph about an experience you have had when you, or someone in your family, ruined a food dish because of using the wrong technique or procedure during the preparation.
Optional: List	_____	the basic preparations and cooking methods used in the following recipes: vegetable casserole, soup with beans, a ground meat dish, a low-fat chicken dish.
6. **Study**	_____	the Information Sheet, objective 2.
7. **Ask**	_____	your instructor to demonstrate the differences between standard measure and metric measure. Which type of measurement do you use most often?

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Optional: Create _____ a display of measuring equipment paired with the appropriate ingredients to be measured. Be able to explain why certain ingredients are measured by using special techniques such as dry ingredients, shortening, and liquids.

Optional: Ask _____ your instructor to demonstrate the proper measuring techniques for liquids, solid fats, powdered sugar, granulated sugar, brown sugar, and flour. Practice the measuring techniques.

Optional: Ask _____ your instructor to explain how to adapt non-standardized equipment to get standard measurements. Using non-standard items you have at home, practice measuring a liquid and granulated sugar.

Optional: Measure _____ one cup of flour using the following methods: (1) very lightly spoon the flour into the cup until heaping, then level off; (2) very lightly spoon the flour into the cup until heaping, but do not level off; (3) shake the cup while spooning in the flour to make sure it has settled, then level off; and (4) pack the flour into the cup using a spoon, then level off. Pour each cup of flour onto a separate sheet of waxed paper and weigh them separately. Is there a difference in weights? What are the implications for measuring accurately?

8. Study _____ the Information Sheet, objective 3.

Optional: Read _____ several recipes in cookbooks and note the abbreviations that you find. Pay attention to the metric measures.

9. Do _____ Assignment Sheet 1.

10. Stop _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

11. Study _____ the Information Sheet, objective 5. Ask your instructor why some recipes should not be doubled, and what alternatives are available.

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Optional:
Ask _____ your instructor to explain the modifications needed when cooking at higher altitudes. Look through cookbooks and packages in the grocery store to find references on altitude modifications.

12. Do _____ Assignment Sheet 2.

13. Stop _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

14. Do _____ Assignment Sheet 3.

15. Stop _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

Optional:
List _____ possible substitutions for the ingredients of a recipe you find in a cookbook. Use the Table of Substitutions to determine how many substitutes you can make. Write the substitutions next to the proper ingredient.

16. Study _____ the Information Sheet, objective 8.

Optional:
Research _____ and report on the historical significance of one herb or spice. The report should contain information about where it is grown, and how long it has been used. Find two recipes that use the herb or spice as an ingredient.

Optional:
Select _____ a recipe (you may prepare the dish if you wish) and prepare garnishes for the dish. Take a photograph of your results and present it to your instructor for review.

Optional:
Interview _____ the chef or kitchen manager of a restaurant. Ask him or her to demonstrate garnish preparations and explain how garnishes are used.

Optional:
Interview _____ a chef from a local restaurant about the use of spices, herbs, and garnishes in his or her work. Write a short paper over the interview.

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17. **Do** ______ Assignment Sheet 4.

18. **Stop** ______ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

Optional: Make ______ herb butters and taste them. Record your reactions to the different herbs.

19. **Study** ______ the Information Sheet, objective 10.

Optional: Design ______ a bulletin board or poster identifying different kinds of fats and how they are used, such as in salad dressings, frying foods, butter in pastry, etc.

20. **Ask** ______ your instructor to demonstrate deep-fat frying and panfrying.

21. **Study** ______ the Information Sheet, objective 11. Ask your instructor to explain the concept of dovetailing.

22. **Do** ______ Assignment Sheet 5.

23. **Stop** ______ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

24. **Take** ______ the posttest provided by your instructor. Have your instructor evaluate your completed test. After your test has been evaluated, follow your instructor's recommendations.

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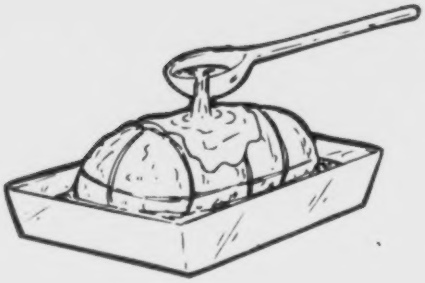
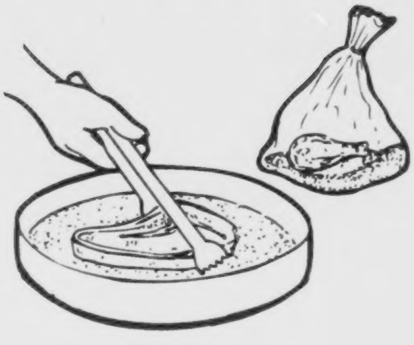
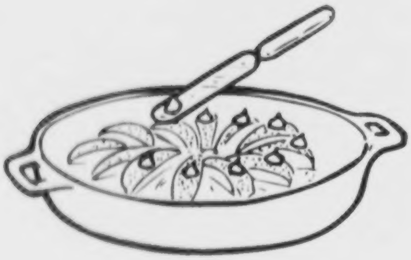
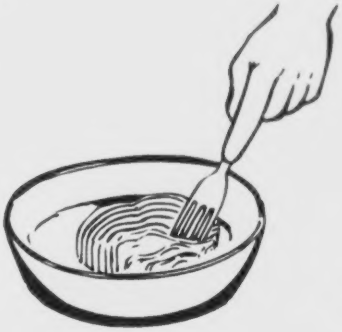
TM 1

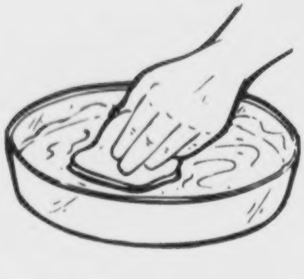
Preparing Recipes

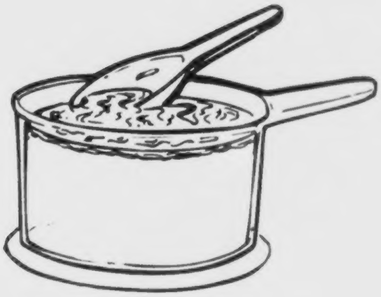












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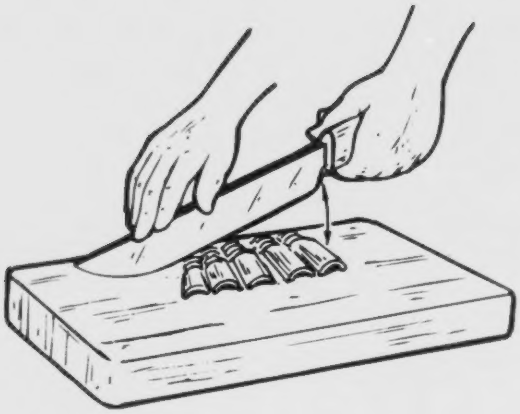
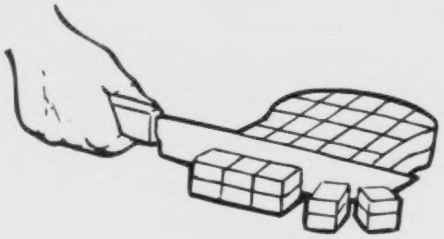
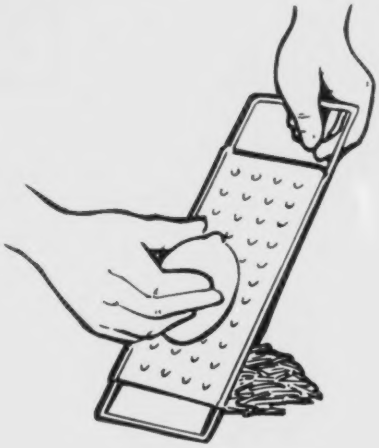
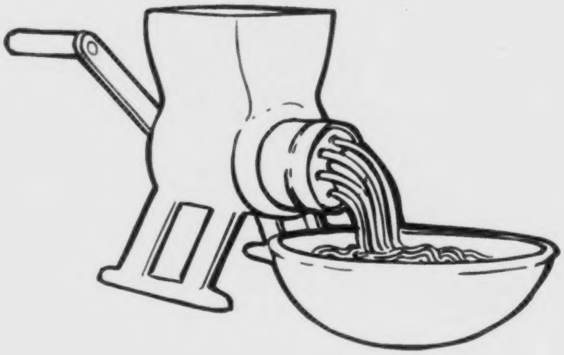
TM 2

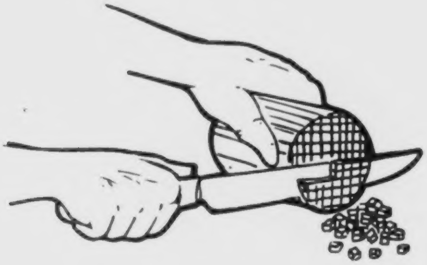
Cutting











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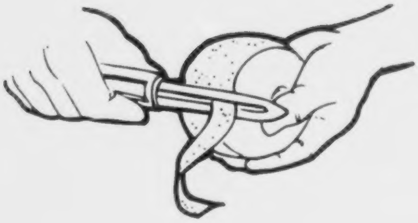
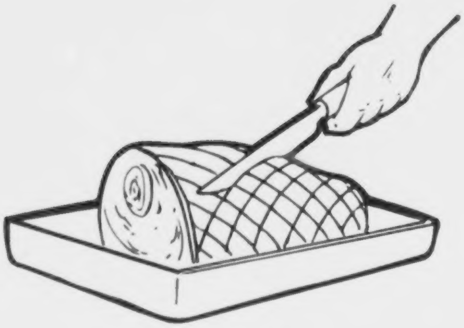
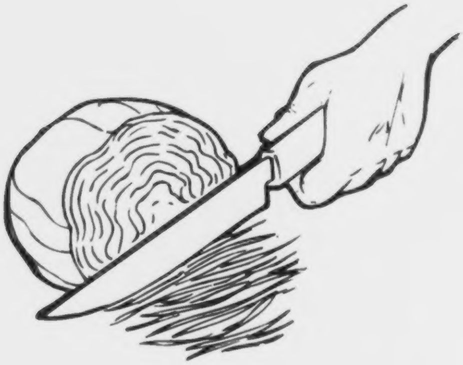
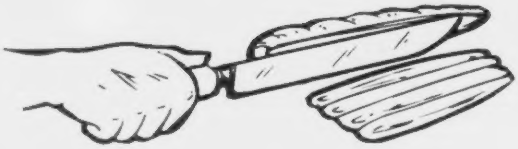
Cutting









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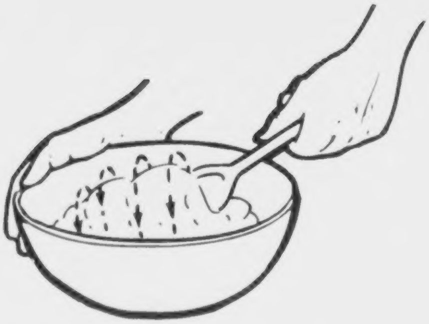
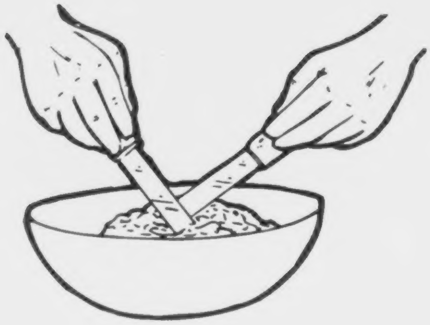
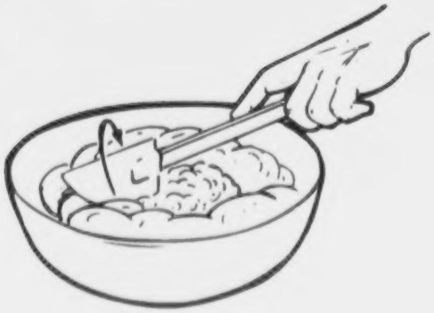
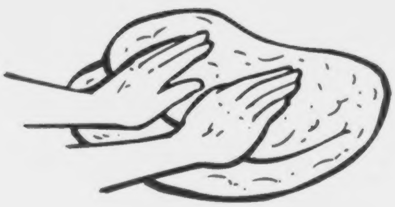
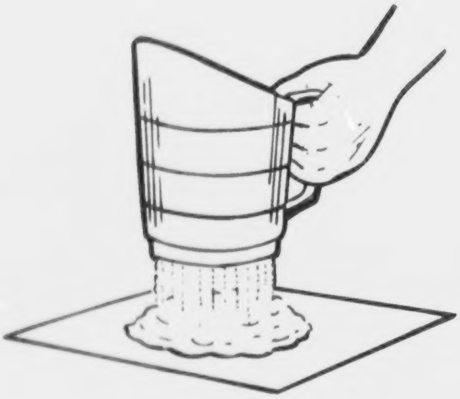
Mixing











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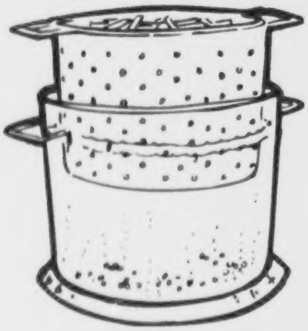
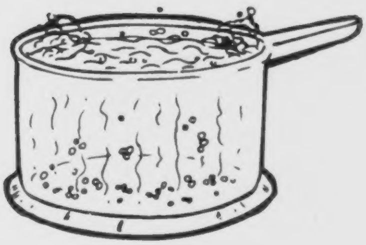
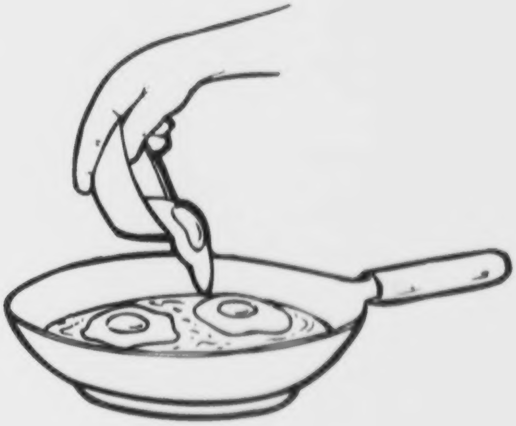
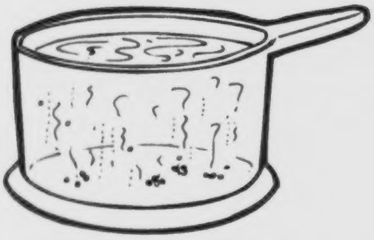
Cooking In Liquid









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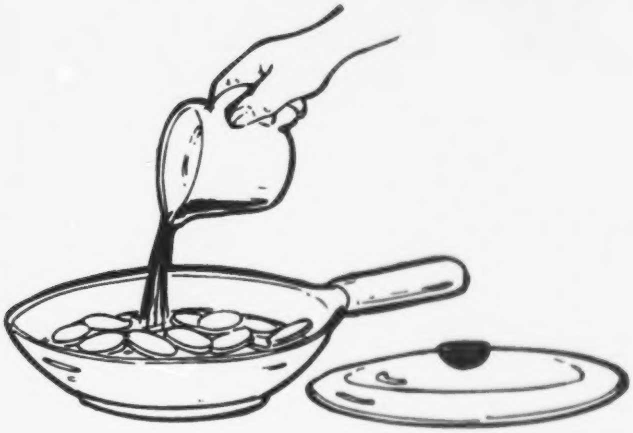
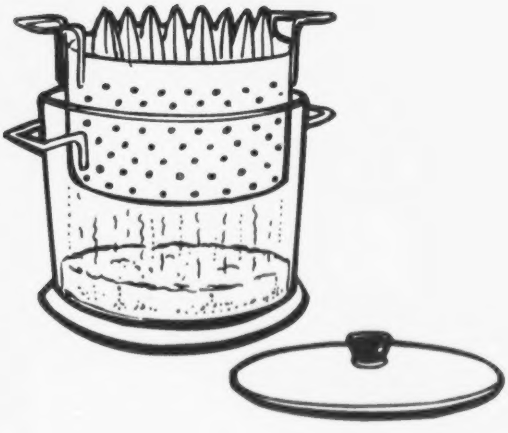
Cooking With Moist Heat





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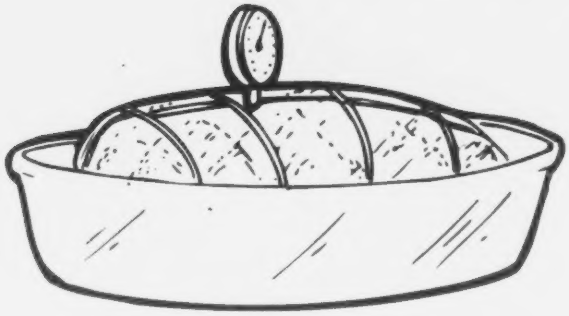
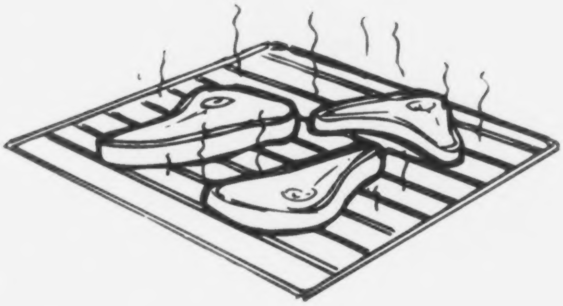
TM 7

Cooking With Dry Heat





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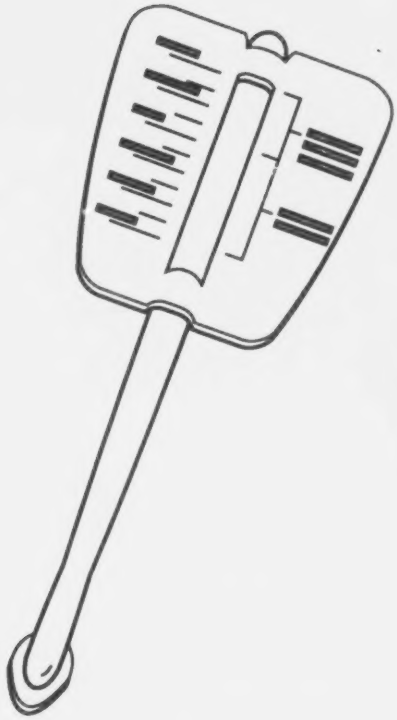
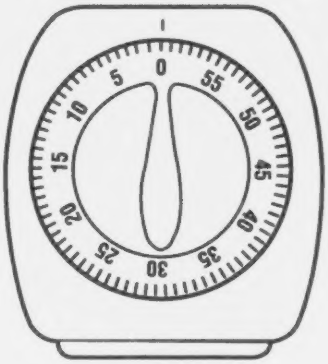
Measurements

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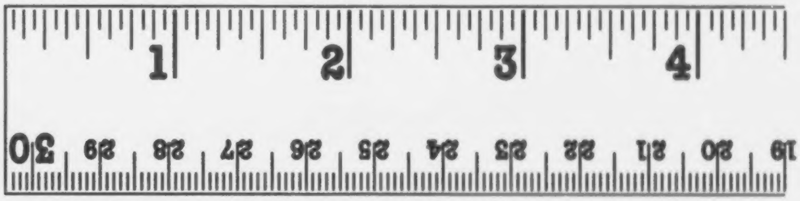
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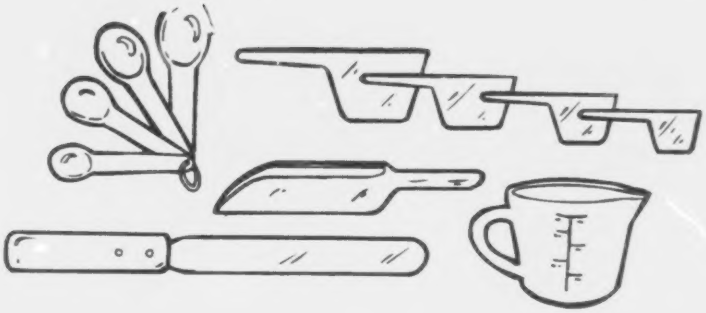
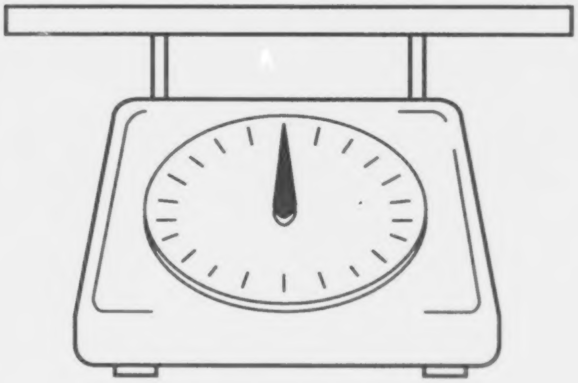
TM 9

Measurements





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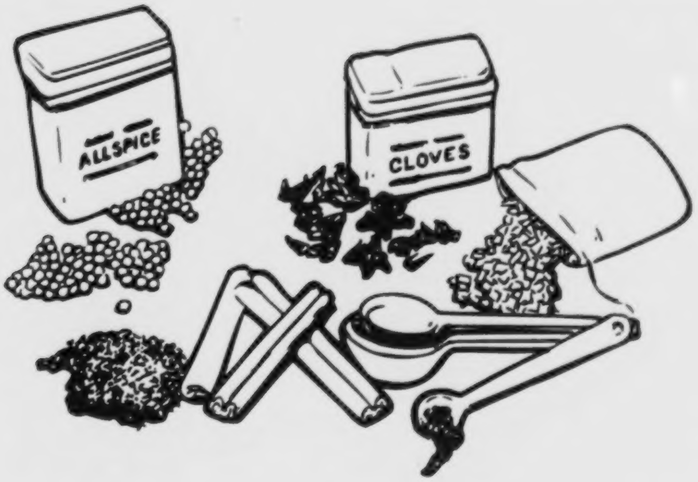
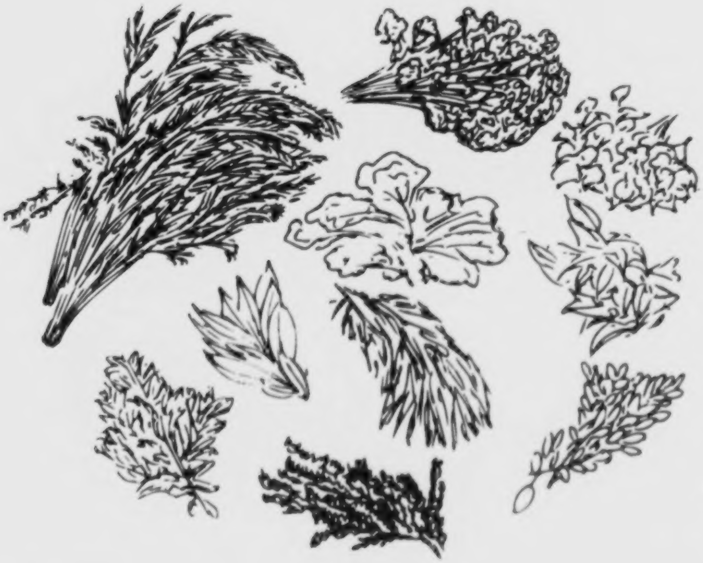
Spices And Herbs





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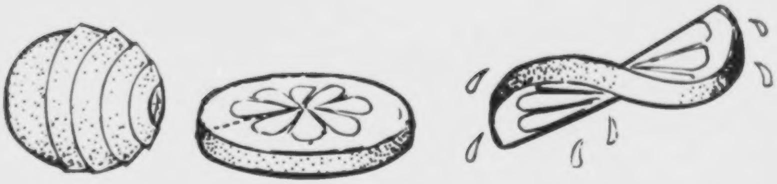
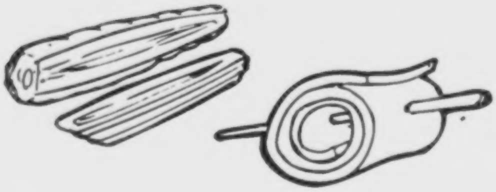
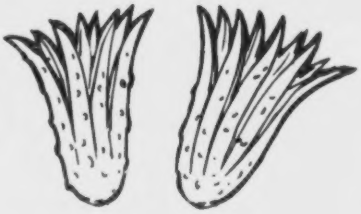
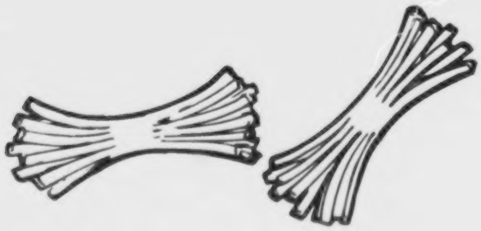
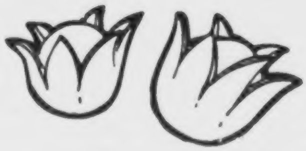
Garnishes











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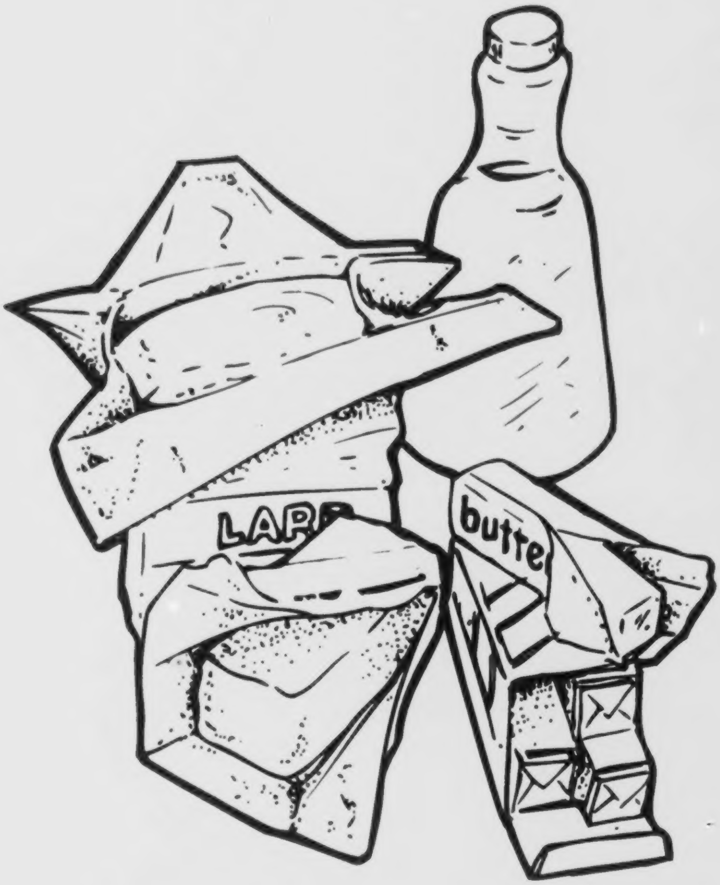
Fats And Oils



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WRITTEN TEST

USING RECIPES

4

Name ____________________ Date ________ Score ___

OBJECTIVE 1

Define the elements of a recipe. Define each element in the space provided.

1. Cooking time – ______________________________
2. Directions – ______________________________
3. Equipment – ______________________________
4. Ingredients – ______________________________
5. Measurements – ______________________________
6. Name – ______________________________
7. Temperature setting – ______________________________
8. Yield – ______________________________

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OBJECTIVE 2

Recognize measurements used in recipes by their definitions. Write the type of measurement in the space provided.

1. measures how long or wide something is; measured by inches and feet in the standard system and by millimeters or centimeters in the metric system

____

2. measures how large or small a food ingredient or cooking utensil is

____

3. measures how hot or cold something is; measured in degrees Fahrenheit (F) in the standard system and in degrees Celsius (C) in the metric system

____

4. measures how long something takes to cook, cool, marinate, etc.; measured in seconds, minutes, or hours

____

5. measures how many food items or cooking utensils are needed

____

6. measures how much space an ingredient takes up; measured by teaspoons, tablespoons, fluid ounces, cups, pints, quarts, and gallons in the standard system and by deciliters, centiliters, milliliters, and liters in the metric system

____

7. measures how heavy or light an ingredient is; measured by ounces and pounds in the standard system and by grams and kilograms in the metric system

____

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OBJECTIVE 3

State abbreviations commonly used in recipes. Write the abbreviation in the blank to the right of each term.

1. cup ____________
2. dozen ____________
3. gallon ____________
4. hour ____________
5. minute ____________
6. ounce ____________
7. pint ____________
8. pound ____________
9. quart ____________
10. tablespoon ____________
11. teaspoon ____________
12. centimeter ____________
13. gram ____________
14. kilogram ____________
15. liter ____________
16. milligram ____________
17. milliliter ____________

OBJECTIVE 4

Evaluated on Assignment Sheet 1.

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OBJECTIVE 5

State principles for modifying a recipe. Answer each question in the space provided.

1. What must you calculate the new amount of in a modified recipe?

   ____

2. When decreasing a recipe:

   a. what size pan should you use?

   ____

   b. how long should you cook the food?

   ____

3. When increasing a recipe:

   a. what size pan should you use?

   ____

   b. how long should you cook the food?

   ____

4. What kinds of foods tend to dry out and overcook easily when decreased?

   ____

5. When decreasing a recipe, what will the effect be on the oven temperature and the baking time?

   ____

6. When measuring less than a cup, to what measurement should you change the proportions?

   ____

7. When increasing a recipe, an extra minute of what is usually required?

   ____

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OBJECTIVE 6 **Evaluated on Assignment Sheet 2.**

OBJECTIVE 7 **Evaluated on Assignment Sheet 3.**

OBJECTIVE 8 **Discuss the uses of spices, herbs, and garnishes.** Answer each question in the space provided.

1. From what are spices made?

2. What kind of flavor do spices usually add?

3. What are herbs?

4. Why are herbs valued?

5. What nutritional value do spices have?

6. What effect does cooking have on the strength of the flavor in spices and herbs?

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7. What form of herbs is more concentrated: dried herbs or fresh herbs?

____

____

8. Why will crushing herbs before adding them to food increase their flavor?

____

____

9. In baking bread, what does the salt do (in addition to adding flavor)?

____

____

10. What do garnishes add to food?

____

____

OBJECTIVE 9 **Evaluated on Assignment Sheet 4.**

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OBJECTIVE 10 **Select appropriate fats and oils for specific purposes.** Write the correct letter in each blank.

A. Flavor
B. Tenderness
C. Deep-fat frying
D. Shallow-fat frying
E. Saute
F. Salad dressings

_____ 1. butter, margarine, vegetable oils (including olive oil); fats with a low smoke point

_____ 2. butter

_____ 3. vegetable oils such as corn oil, cotton seed oil, peanut oil, olive oil, safflower oil, or a combination

_____ 4. margarine

_____ 5. olive oil

_____ 6. vegetable oils (except olive oil), vegetable shortenings, and lard are ideal

_____ 7. butter, margarine, and mixtures of animal fats and vegetable fats that have a low smoke point

_____ 8. oil that is bland or mild in flavor

_____ 9. vegetable shortenings for pastry, cakes, pies, and biscuits

_____ 10. bacon grease

_____ 11. oil for quick breads and yeast breads

OBJECTIVE 11 **Define a time-work plan.**

____

____

OBJECTIVE 12 **Evaluated on Assignment Sheet 5.**

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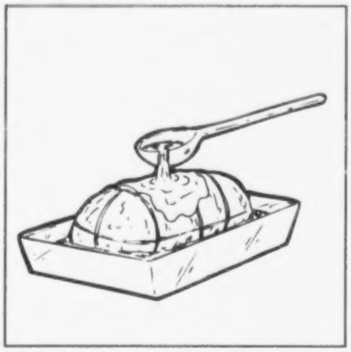
TERMS COMMONLY USED IN RECIPES

General food preparation

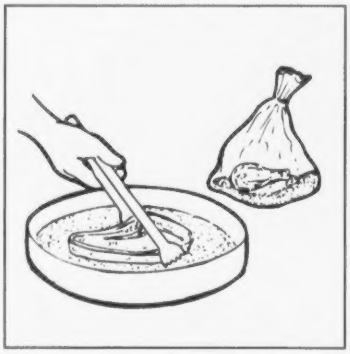
- **baste** – keeps foods from drying out and adds flavor by pouring or brushing liquid over the food while it cooks; meat drippings, melted fat, and sauces are commonly used (Figure 1)

FIGURE 1



- **bread** – to coat food with crumbs; foods can be dipped in egg before coating to help crumbs adhere
- **brown** – to make the surface of the food brown in color by frying, baking, toasting, or broiling
- **brush** – to spread a coating such as a sauce or melted fat on the surface of food with a soft brush
- **chill** – to place food in the refrigerator until cold
- **coat** – to cover food evenly with crumbs, sugar, flour or other ingredient (Figure 2)

FIGURE 2



- **cool** – to let food stand at room temperature until it reaches room temperature

  ☑ **NOTE:** This applies as a technique for preparing a food item, not prior to storing it.
- **dilute** – to add water to another liquid

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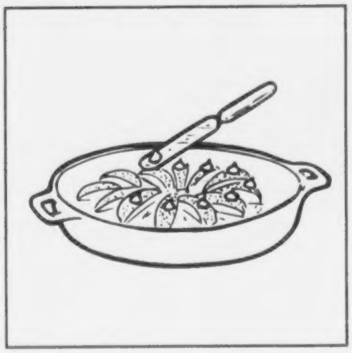
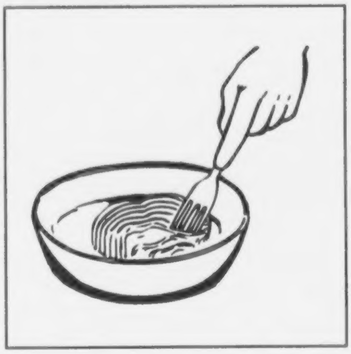
FIGURE 3



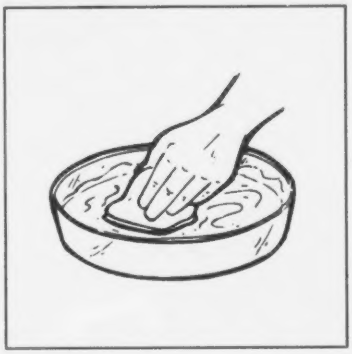
- **dot** – to put small pieces of an ingredient over a surface (Figure 3)
- **dredge** – to coat a food with a dry ingredient
- **dust** – to lightly coat a food with a dry ingredient

FIGURE 4



- **flake** – to break up layered sections of a food (Figure 4)
- **flour** – to dust the surface lightly with flour
- **garnish** – to decorate one food with another of a different texture, contrast, or color

FIGURE 5

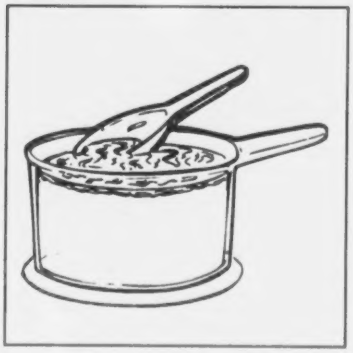


- **grease** – to rub with fat or oil (Figure 5)
- **marinate** – to soak food in an acid-oil mixture for a specified length of time
- **mold** – to shape food
- **reduce** – to cook a liquid until some moisture evaporates and the liquid becomes more concentrated

May be photocopied for student use.

- **skim** – to remove the top layer of a liquid (Figure 6)

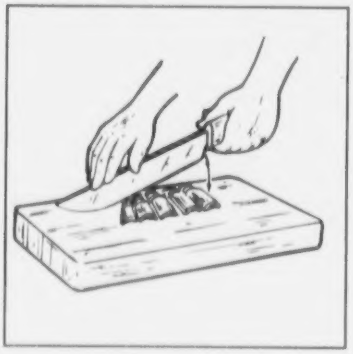
FIGURE 6



Cutting

- **chop** – to cut into small, irregularly shaped pieces (Figure 7)
- **core or pit** – to remove the hard center portion and the seeds or pit of a fruit or vegetable

FIGURE 7



- **cube** – to cut into small, uniformly sized squares of about 1/2 inch (Figure 8)
- **dice** – to cut into very small pieces of about 1/4 inch

FIGURE 8

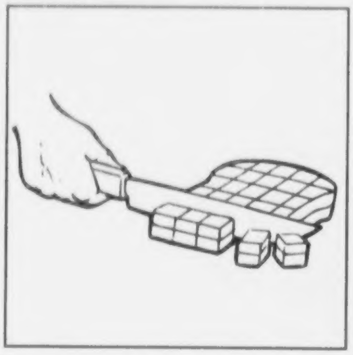


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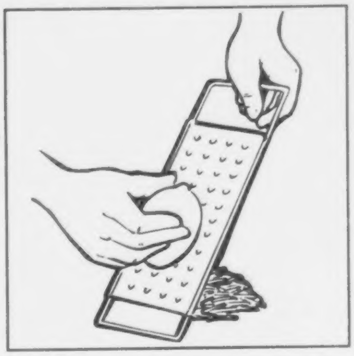
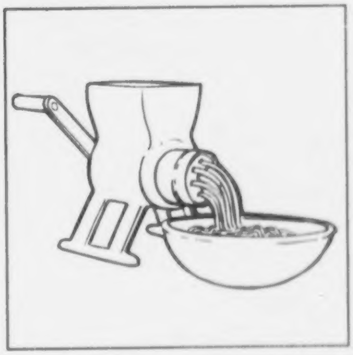
FIGURE 9



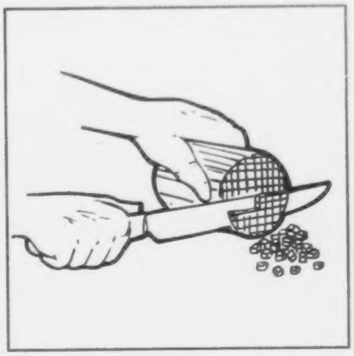
- **grate** – to rub food against a grater to make various sizes of small pieces (Figure 9)

FIGURE 10



- **grind** – to cut by putting food through a chopper or grinder (Figure 10)
- **julienne** – to cut into long, thin strips, approximately 1/4 inch thick

FIGURE 11

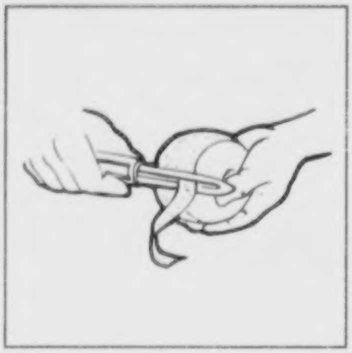


- **mince** – to cut food into very fine pieces of less than 1/4 inch (Figure 11)

May be photocopied for student use.

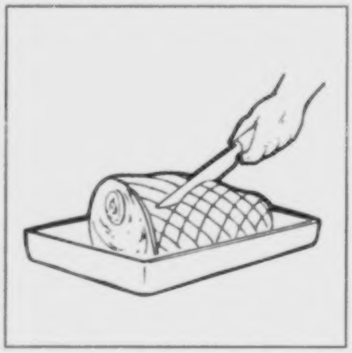
- **pare** – to cut off a very thin layer of the peel of a fruit or vegetable (Figure 12)
- **peel** – to pull off the rind of fruits and vegetables
- **puree** – to force food though a strainer or food press to make a semi-liquid pulp

FIGURE 12



- **score** – to make straight, thin lines in the surface of a food such as bread or ham (Figure 13)

FIGURE 13



- **shred** – to tear or cut into thin strips or pieces (Figure 14)

FIGURE 14

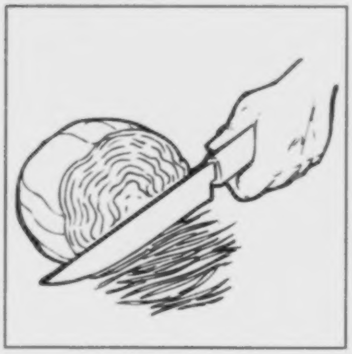


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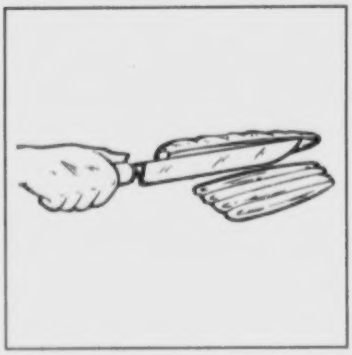
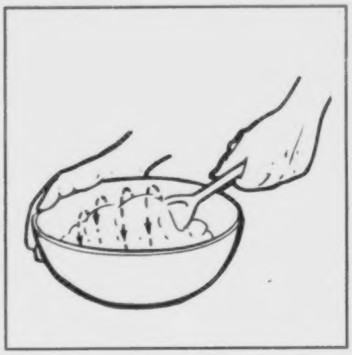
FIGURE 15



- **sliver** – to cut into long, thin pieces, less than 1/4 inch thick (Figure 15)

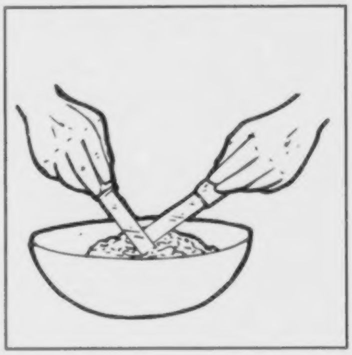
Mixing

FIGURE 16



- **beat** – to mix ingredients until smooth using an over-and-over motion (Figure 16)
- **blend or combine** – to mix two or more ingredients together until well combined, but not beaten
- **cream** – to soften or blend by rubbing the food on the side of a bowl with a spoon, or by mixing

FIGURE 17



- **cut in** – to mix fat evenly throughout dry ingredients using a pastry blender or two table knives in a scissor motion (Figure 17)

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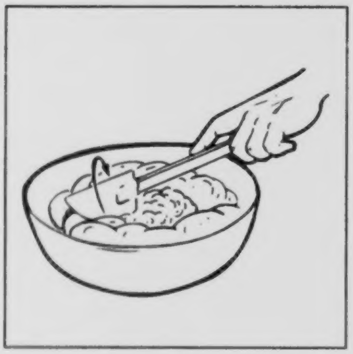
- **fold in** – to combine two ingredients together by inserting the edge of a spoon down through the middle of the mixture, then sliding the spoon across the bottom, turning the spoon over near the surface and bringing it up with some of the food mixture; repeat until thoroughly mixed (Figure 18)

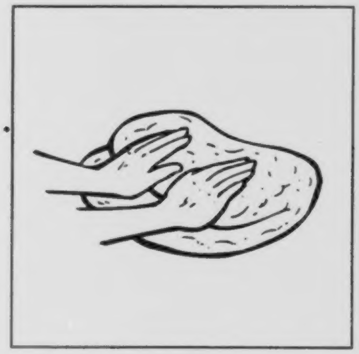
FIGURE 18



☑ **NOTE:** This is used to combine delicate mixtures such as beaten egg white or whipped cream.

- **knead** – to manipulate dough by pushing down and rolling back with the heel of the hand (Figure 19)
- **mix** – to combine two or more ingredients

FIGURE 19



- **sift** – to put dry ingredients through a fine sieve to remove lumps and aerate (Figure 20)
- **stir** – to mix ingredients with a circular motion
- **toss** – to tumble ingredients lightly
- **whip** – to beat rapidly to incorporate air so ingredient will become light and fluffy

FIGURE 20

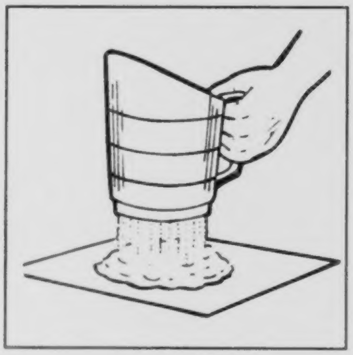


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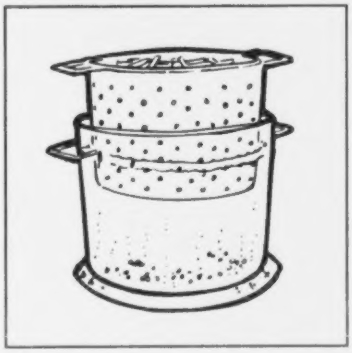
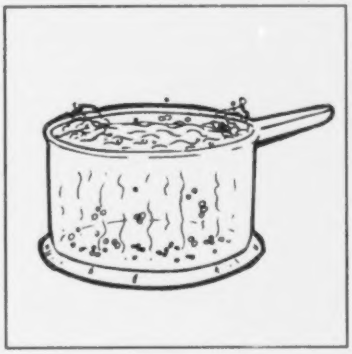
FIGURE 21



Cooking in liquid

- **blanch** – to dip food into boiling water for a very short time in order to soften skin for removal or to stop enzyme action in vegetables before freezing (Figure 21)

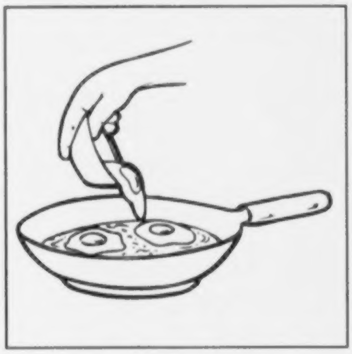
FIGURE 22



- **boiling** – to cook liquid until bubbles rise continuously and break the surface of the liquid (Figure 22)

  ☑ **NOTE:** The temperature at which water normally boils is 212 degrees Fahrenheit (100 degrees Celsius).

FIGURE 23



- **par-boil** – to boil in water until partially cooked
- **poaching** – to cook in a small amount of water so that food will retain its shape (Figure 23)
- **scald** – to heat a liquid to the simmering point

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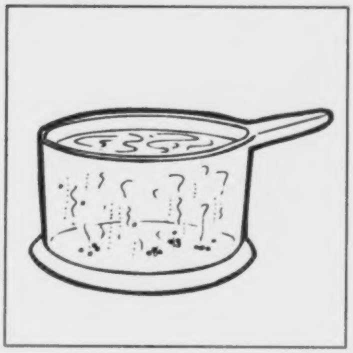
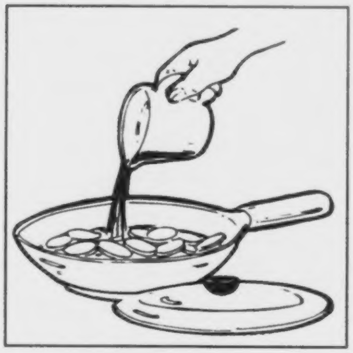
FIGURE 24



- **simmer** – to cook food in liquid at temperatures just below the boiling point (Figure 24)
- **stew** – to cover food with a liquid and simmer it for a long period of time

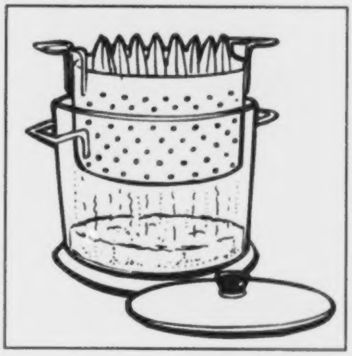
FIGURE 25



Cooking with moist heat

- **braise** – to cook slowly with some liquid in covered cookware (Figure 25)

FIGURE 26



- **steam** – to cook over boiling water (Figure 26)

  ☑ **NOTE:** It is the steam that actually cooks the food.

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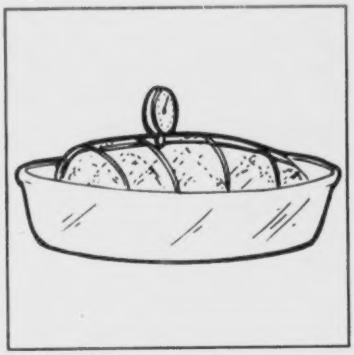
Cooking in fat

- **deep-fat fry** – to cook food in enough fat to completely cover the food
- **panbroil** – to cook food in an open pan with very little or no fat
- **panfry and saute** – to cook food slowly, over direct heat, in a small amount of fat in an uncovered frying pan
- **stir-fry** – to quickly cook small pieces of food in a small amount of fat using a very hot pan; a round-bottomed pan called a wok is often used
- **sear** – to use high heat to brown meat quickly

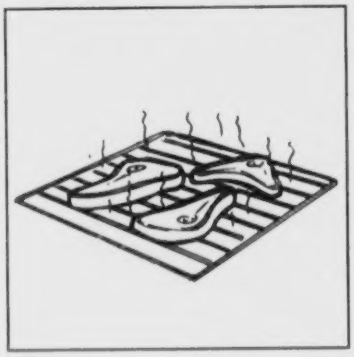
FIGURE 27



Cooking with dry heat

- **bake** – to cook covered or uncovered without a liquid
- **roast** – to cook uncovered without a liquid (Figure 27)
- **barbecue** – to roast meat or poultry slowly over coals; requires frequent basting

FIGURE 28



- **broil or grill** – to cook under direct heat or over coals (Figure 28)

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LAP
SHEET

APPLYING FOOD SCIENCE PRINCIPLES

5

Name ______________________________

Check the blank as you complete each step.

1. **Take**	_____	the pretest provided by your instructor. Have your instructor evaluate your completed test. After your test has been evaluated, follow your instructor's recommendations.
2. **Read**	_____	the introduction, unit objective, and specific objectives.
3. **Do**	_____	the focus assignments.
4. **Stop**	_____	and have your instructor evaluate your work from the focus assignment. After your work has been evaluated, follow your instructor's recommendations.
5. **Study**	_____	the Information Sheet, objective 1.
Optional: Research	_____	a type of bread from a different culture. Write a half-page report of your findings and present it to your instructor.
6. **Do**	_____	Assignment Sheet 1.
7. **Stop**	_____	and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.
Optional: Test	_____	the action of baking soda as a leavening agent by stirring 1 T of baking soda into a 1/4 cup of molasses. Observe and record the reaction that occurs. Discuss your findings with your instructor.
8. **Do**	_____	Assignment Sheet 2.
9. **Stop**	_____	and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

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Optional: Write ____ a half-page report on where and how thickening agents are used. Use recipes and cookbooks as resources.

10. **Do** ____ Assignment Sheet 3.

11. **Stop** ____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

Optional: Look ____ through recipes in a cookbook to find products that use yeast. Search for the different forms of yeast and which is called for most often in recipes.

Optional: Cut ____ pictures from magazines and newspapers of examples of quick and yeast breads. Display the photos on a poster board.

12. **Ask** ____ your instructor to demonstrate different mixing methods such as: straight dough method, fast mixing method, sponge method, and the batter or no-mix method.

13. **Ask** ____ your instructor to demonstrate guidelines and procedures in the Job Sheet. Use the Job Sheet to follow along. Pay careful attention to any guidelines, cautions, and warnings.

14. **Practice** ____ the procedure demonstrated by your instructor. Use the Job Sheet as a guide. Notify your instructor when you are ready to perform the procedures for evaluation.

15. **Stop** ____ and have your instructor evaluate your work from the Job Sheet. After your work has been evaluated, follow your instructor's recommendations.

16. **Study** ____ the Information Sheet, objective 6.

Optional: Research ____ how enzyme activity is affected by temperature changes, pH changes, and irradiation. Ask your instructor for assistance in identifying resources.

17. **Do** ____ Assignment Sheet 4. Ask your instructor to demonstrate what happens if meat is over tenderized.

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18. **Stop** _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

19. **Study** _____ the Information Sheet, objective 8.

Optional: Test _____ for "hot spots" in a microwave oven. Place small pieces of food in different parts of the oven and compare the differences.

Optional: Identify _____ which cooking equipment at home and in the food laboratory could be used for both the microwave and the conventional oven.

Optional: Visit _____ a commercial kitchen that uses a convection oven. Write a discussion paper on the advantages of convection ovens in commercial operations.

Optional: Visit _____ a grocery store and read labels of convenience foods that require cooking. Find four products that give directions for microwave cooking and conventional methods. Write down the name of the products and compare the directions for microwaving and conventional cooking.

Optional: Convert _____ a conventional recipe to a microwave recipe and prepare it. Report to your instructor on how the products turned out, and the differences in cooking times.

20. **Ask** _____ your instructor to demonstrate how microwave ovens work, how to cover and safely uncover food, and the safe way to remove food from a microwave oven.

21. **Do** _____ Assignment Sheet 5.

22. **Stop** _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

23. **Study** _____ the Information Sheet, objective 10.

24. **Do** _____ Assignment Sheet 6.

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25. Stop	_____	and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.
Optional: Test	_____	the pH balance of the tap water in your home. Is it soft or hard water? How does it taste? Research ways that are available to change the pH in your water. Discuss your findings with your instructor.
26. Study	_____	the Information Sheet, objective 12.
27. Read	_____	Handout 2, "Types of Food Additives." Obtain a copy from your instructor.
Optional: Report	_____	on one food additive. Your one-page report should include the benefits and risks of the additive, alternatives for the additive, its use, and whether it is natural, artificial (synthetic) or both.
Optional: Interview	_____	a livestock producer about the use of feed additives such as medicated feed or performance-stimulating additives. Ask the producer to discuss the advantages and disadvantages, as well as the regulation of additives.
Optional: Collect	_____	at least 10 food labels that give additives as ingredients. List the additives from the labels. Report your findings to your instructor.
28. Study	_____	the Information Sheet, objective 13.
Optional: Research	_____	the use of antibiotics in food animals. Give an oral report to your instructor.
Optional: Write	_____	a half-page paper on health concerns related to the use of artificial sweeteners.
29. Study	_____	the Information Sheet, objective 14.

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Optional: Mix _____ equal parts of vinegar and oil together. Shake for 30 seconds, then record the time it takes them to separate. Think about why they separate. Add 1 tsp of egg as an emulsifier or stabilizer and shake again. Record the time it takes to separate. Compare the differences in times. Report your findings to your instructor.

30. Study _____ the Information Sheet, objective 15.

Optional: Compare _____ canned beans, fresh beans, dried beans, and frozen beans. Determine the nutritional difference between them. Answer the question "Which is closest to the nutrient content of fresh beans?" Report your findings to your instructor.

Optional: Interview _____ a county extension agent. Ask about canning methods and write a summary of the interview.

31. Do _____ Assignment Sheet 7.

32. Stop _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

33. Study _____ the Information Sheet, objective 17.

Optional: List _____ foods which are not usually frozen. Discuss, on paper, why the foods you chose are not frozen.

Optional: Ask _____ your instructor to demonstrate how to freeze a complete meal.

34. Do _____ Assignment Sheet 8.

35. Stop _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

36. Study _____ the Information Sheet, objective 19.

37. Do _____ Assignment Sheet 9.

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38. **Stop** _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

39. **Do** _____ Assignment Sheet 10.

40. **Stop** _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

41. **Take** _____ the posttest provided by your instructor. Have your instructor evaluate your completed test. After your test has been evaluated, follow your instructor's recommendations.

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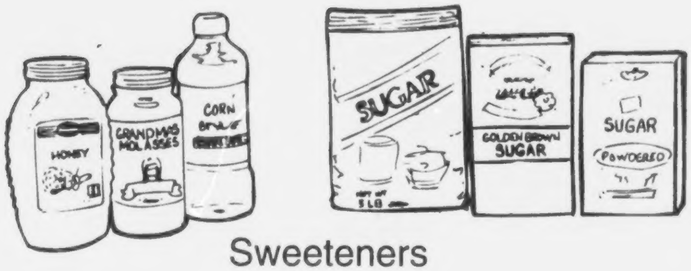
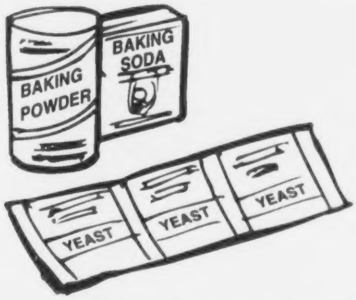
TM 1

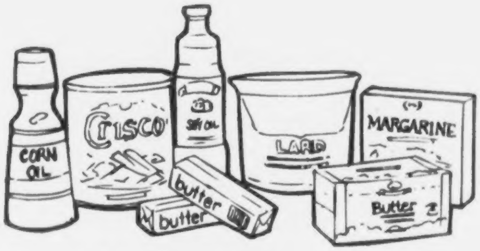
Basic Baking Ingredients


HONEY
GRANDMA'S MOLASSES
CORN SYRUP
SUGAR
5 LB
GOLDEN BROWN SUGAR
SUGAR
POWDERED

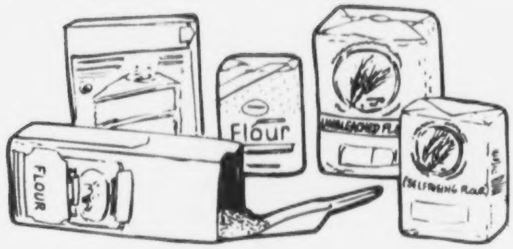
Sweeteners


BAKING POWDER
BAKING SODA
YEAST
YEAST
YEAST

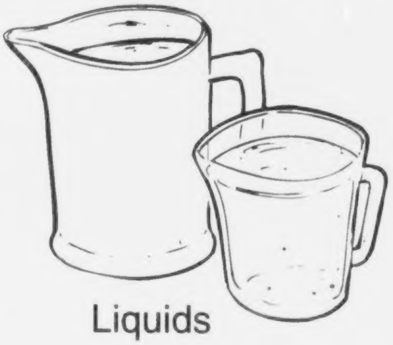
Leavening agents


CORN OIL
CRISCO
SOFT OIL
butter
butter
LARD
MARGARINE
Butter

Fats and oils

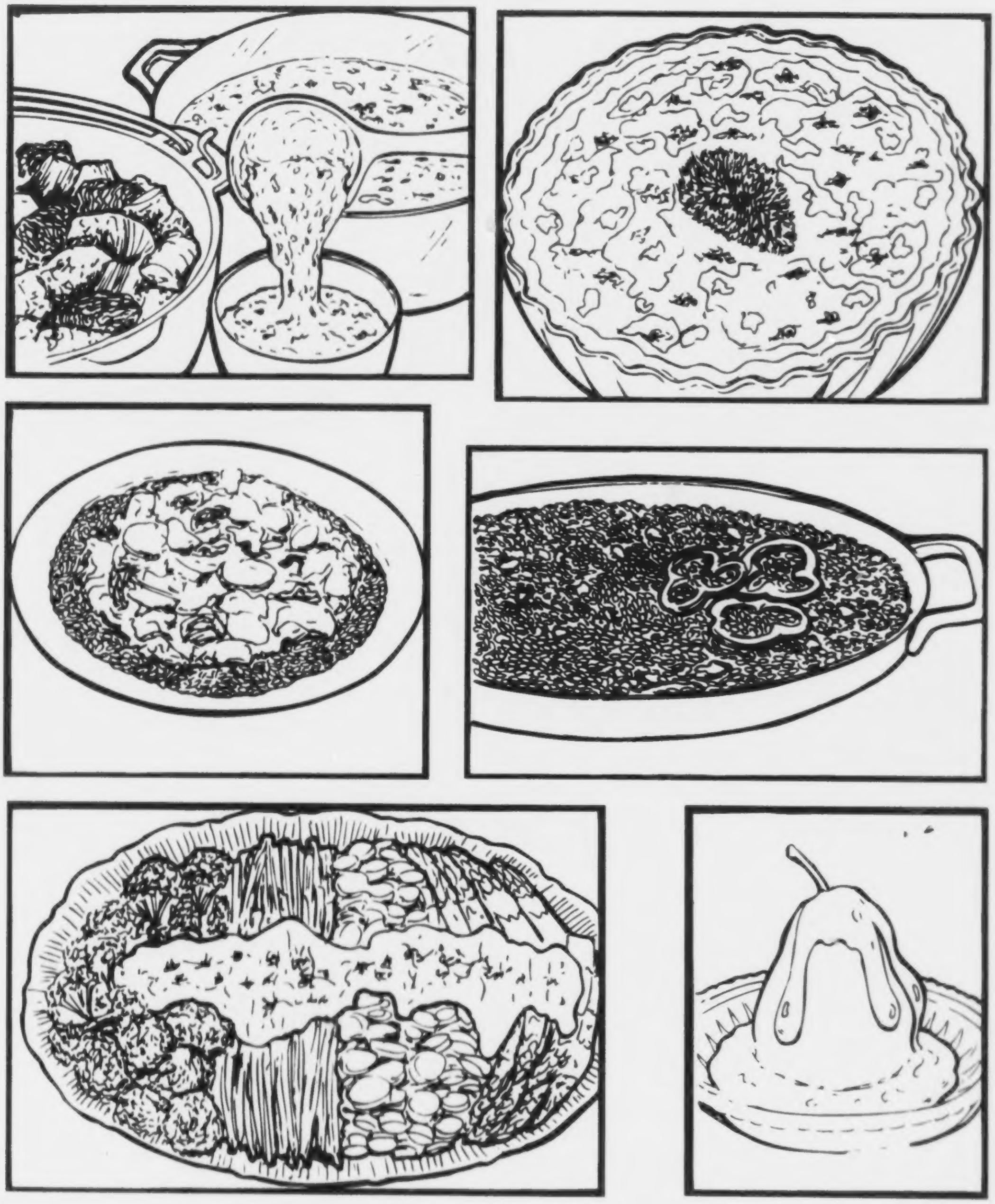

FLOUR
Flour
UNBLEACHED FLOUR
SELF-RISING FLOUR

Flour



Liquids

Thickened Foods



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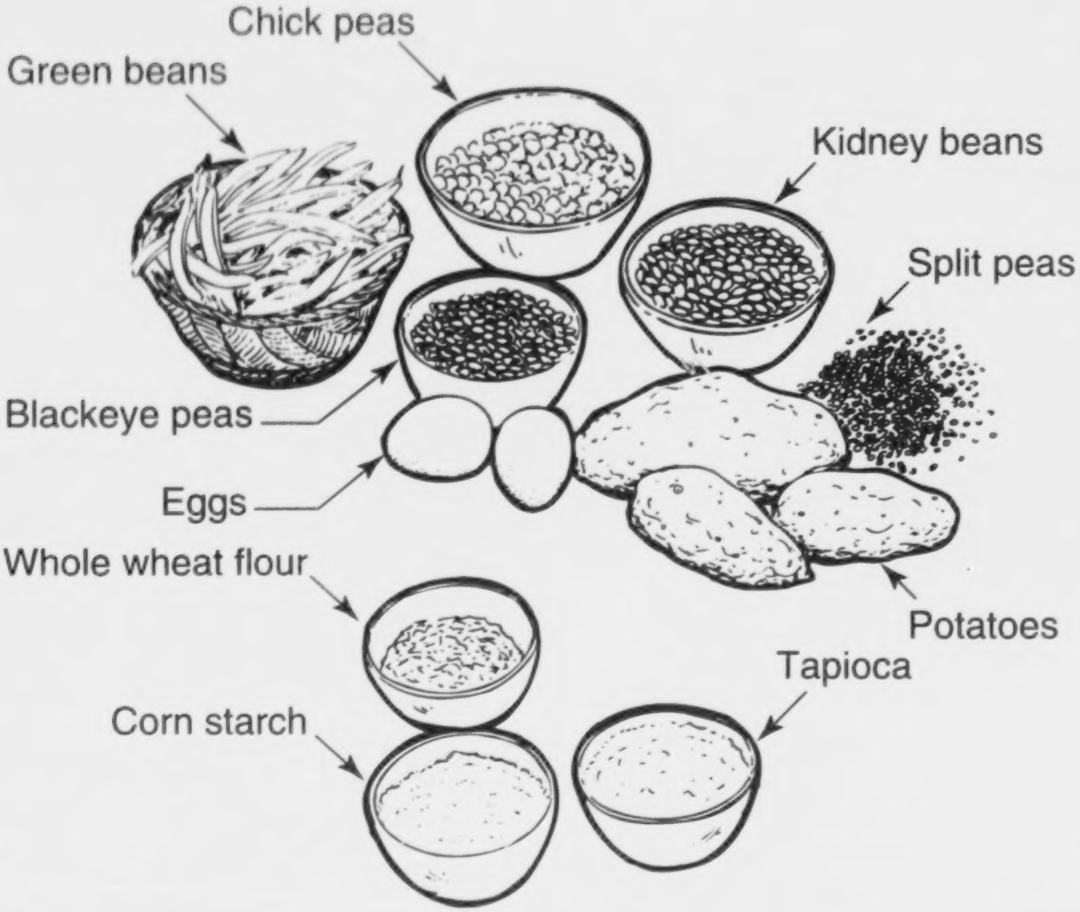
Thickeners


Chick peas
Green beans
Kidney beans
Split peas
Blackeye peas
Eggs
Whole wheat flour
Potatoes
Tapioca
Corn starch

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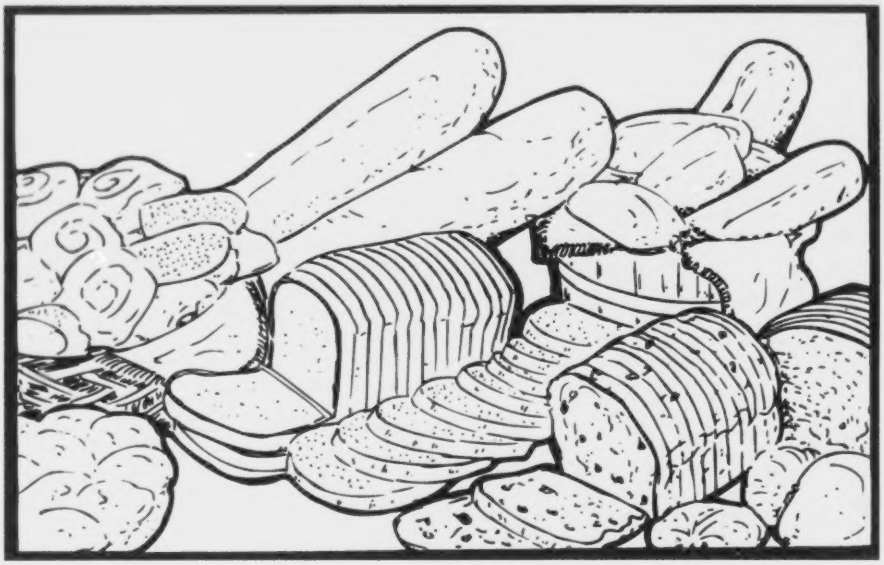
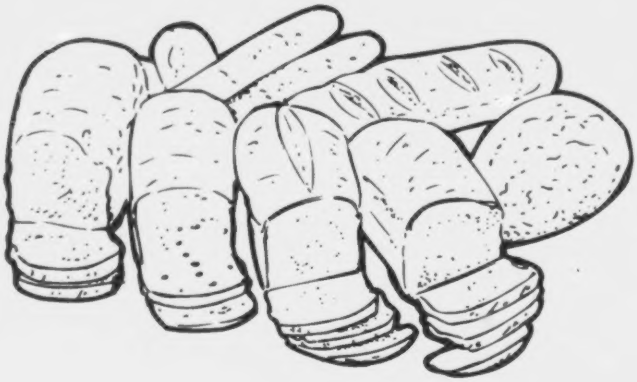
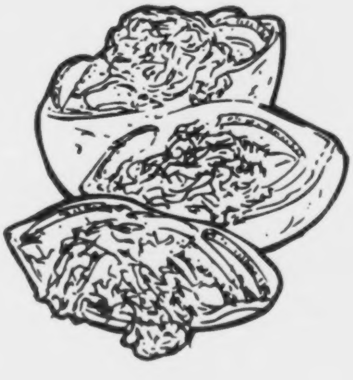
Yeast Breads







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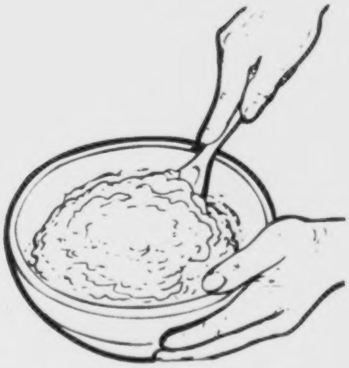
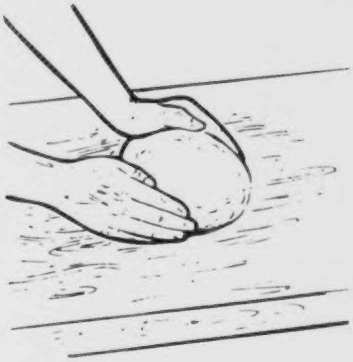
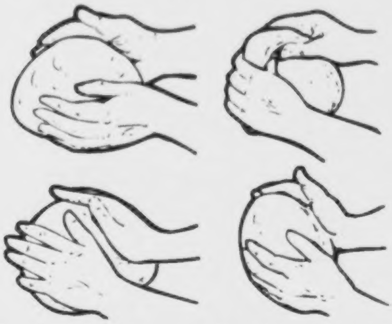
How to Make Yeast Bread



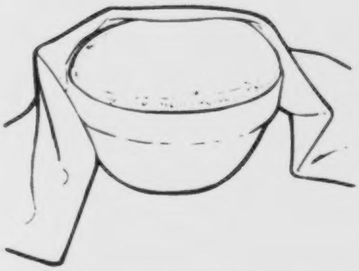
1. Combine ingredients and beat until smooth. Add in enough flour until moderately stiff.



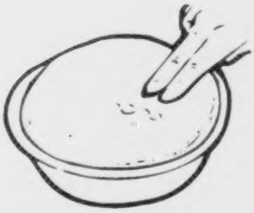
2. On a lightly floured surface knead yeast until it turns into a silky smooth elastic ball.



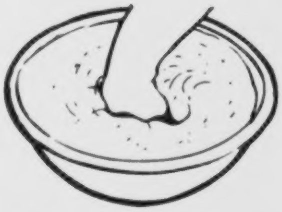
3. Rythmically knead the dough.



4. Allow to rise in a warm place so that yeast grows.



5. Dough should double in bulk. Test dough for lightness with two fingers.



6. When dough is light, punch down.

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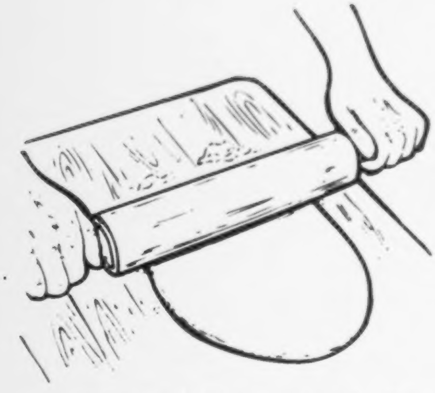
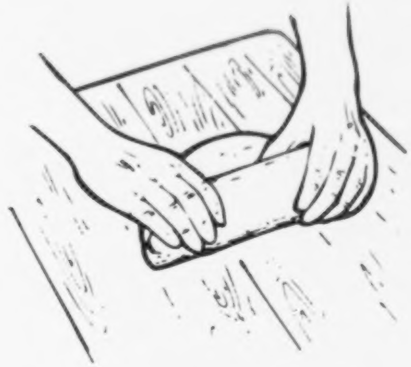
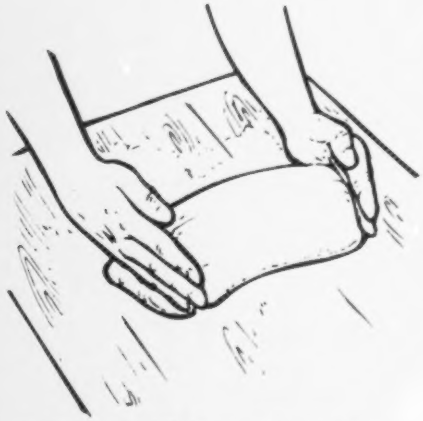
How to Make Yeast Bread



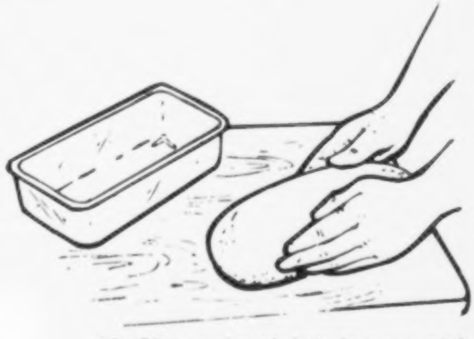
7. Roll dough into a rectangle. Be sure it is even in thickness.



8. Roll dough up tightly toward you, avoiding air pockets.



9. Pinch and flatten ends of roll by pressing down on both ends.



10. Shape dough into loaves and bake in loaf pans.

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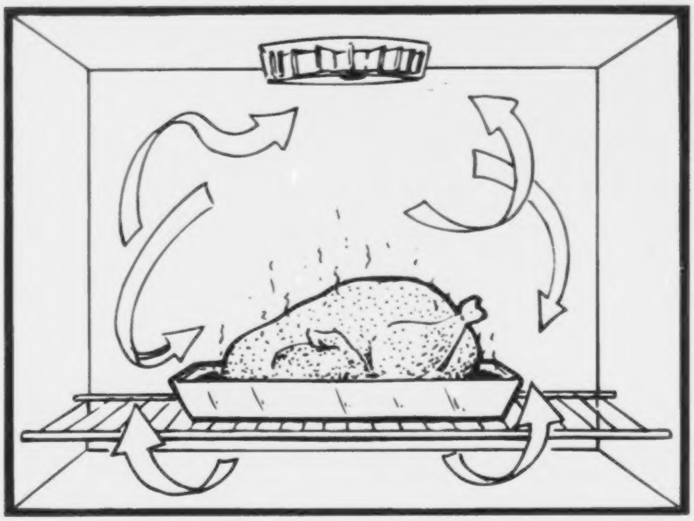
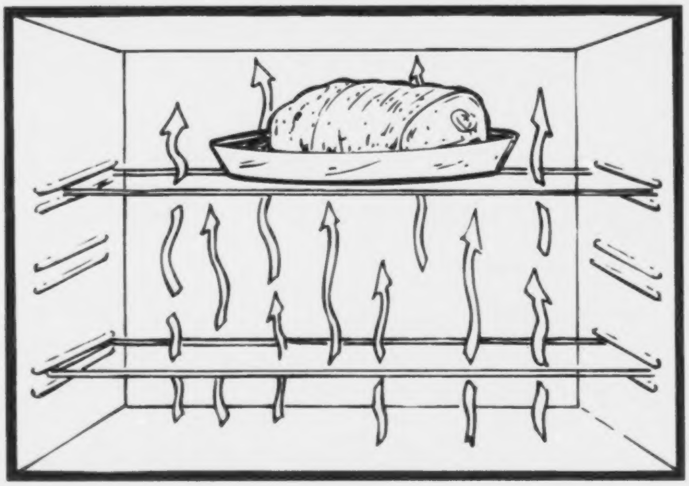
How Convection and Conventional Ovens Cook





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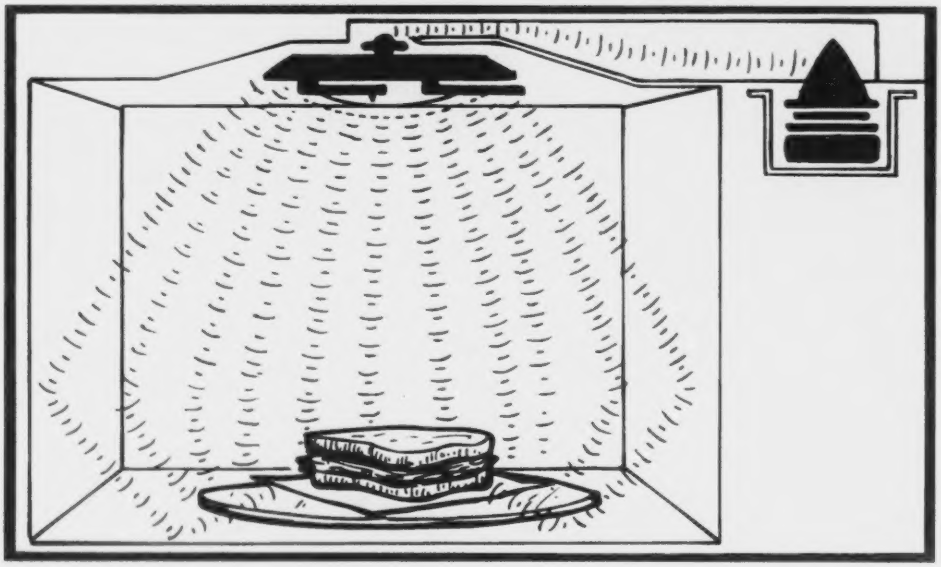
How a Microwave Oven Cooks



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Additive Labeling

NUTRITION FACTS

[redacted]

CONTAINS NO ARTIFICIAL ADDITIVES OR PRESERVATIVES.

Serving Suggestions: Use peas & carrots as they come from the can for salads and cold dishes. To heat, empty contents into saucepan. Heat (do not boil); season to taste; serve.

To Microwave: Empty contents into glass or ceramic dish; cover; heat 3 minutes. Stir; season to taste; serve.

INGREDIENTS: PEAS,WATER,CARROTS,SUGAR,SALT.

DISTRIBUTED BY
CIMC CORP.

**WT. OF VEGETABLES (10 3/4OZ.) BEFORE ADDITION OF LIQUID .

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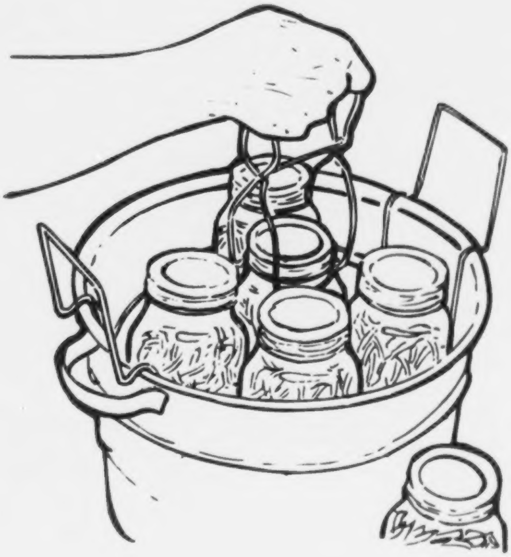
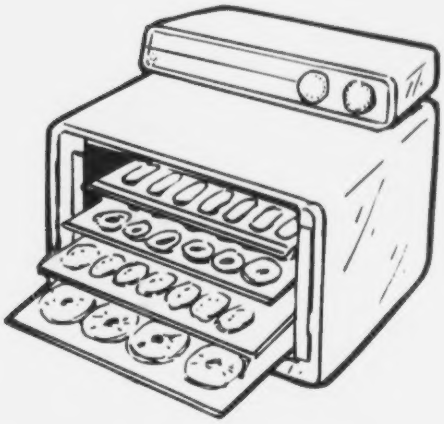
Methods of Preserving Foods





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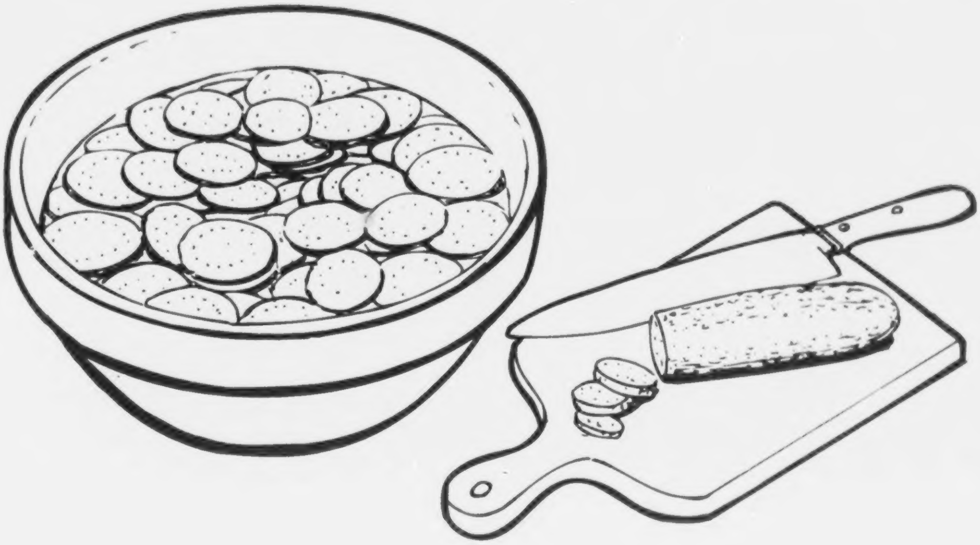
Methods of Preserving Foods



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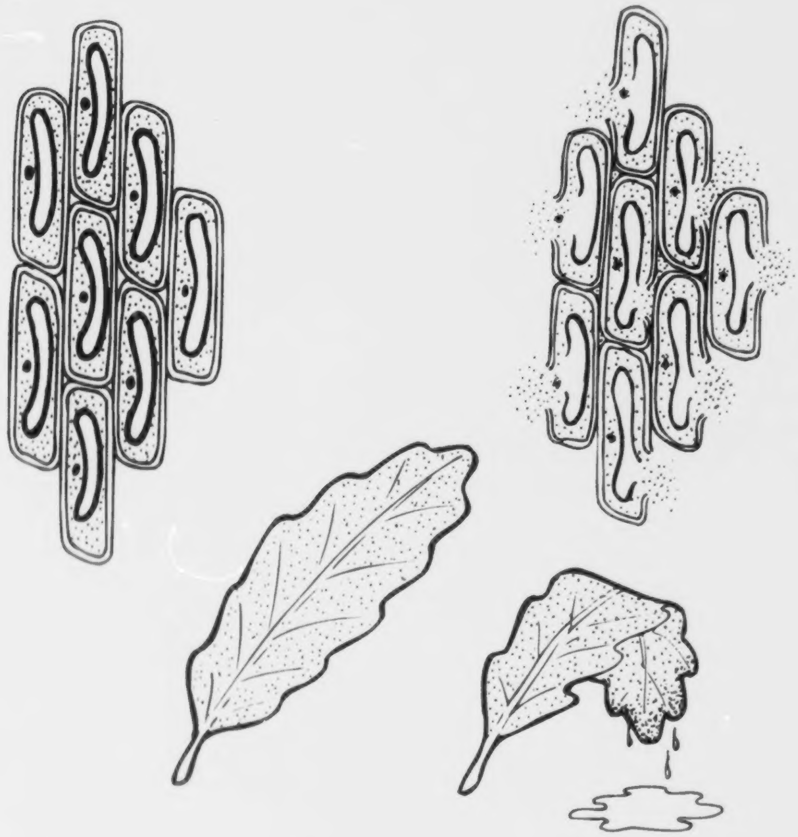
TM 12

Ice Crystal Damage



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WRITTEN
TEST

APPLYING FOOD SCIENCE PRINCIPLES

5

Name ______________________ Date ________ Score ___

OBJECTIVE 1

Distinguish among the purposes of ingredients used in baking. In the blank beside each numbered item, write the letter of the correct answer.

____ 1. The purpose of flour in baking is to

a. enable the product to rise by trapping air or gas in the mixture.
b. dissolve ingredients.
c. give structure to baked products.
d. strengthen the gluten.

____ 2. The ingredient that helps bread to rise by allowing yeast to grow and to make carbon dioxide is

a. Sugar
b. Salt
c. Seasonings and flavorings
d. Flour

____ 3. Which ingredient helps dough separate into layers?

a. Eggs
b. Liquids
c. Sugar
d. Fat

____ 4. In baking, a purpose of salt as an ingredient is to

a. form gluten when mixed with a liquid.
b. regulate the action of yeast.
c. trigger the release of carbon dioxide in leavening.
d. add color.

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_____ 5. Which ingredient acts as a binding agent?

a. Flour
b. Leavening agents
c. Eggs
d. Liquids

OBJECTIVE 2 **Evaluated on Assignment Sheet 1.**

OBJECTIVE 3 **Evaluated on Assignment Sheet 2.**

OBJECTIVE 4 **Evaluated on Assignment Sheet 3.**

OBJECTIVE 5 **Evaluated on the Job Sheet.**

OBJECTIVE 6 **Explain how enzyme reactions are involved in food preparation.** Write your answers in the blanks provided.

1. What do enzymes attack and degrade in meat?

____

____

2. On which cuts of meat are enzymes most effective when used as a tenderizer?

____

____

3. How would you describe the aging process?

____

____

4. What is one measure of the adequacy of milk pasteurization?

____

____

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5. The enzymes that cause ripening in fruit are found where?

____

____

6. As a result of enzyme action, starch changes to what?

____

____

7. Blanching, freezing, canning, and drying are examples of food preservation methods that do what when food is at its peak quality?

____

____

8. Commercial meat tenderizers contain enzymes that are used to break down what kind of protein?

____

____

OBJECTIVE 7 **Evaluated on Assignment Sheet 4.**

OBJECTIVE 8 **Distinguish among conventional, convection, and microwave cooking.** Write the correct letter in each blank.

A. Conventional
B. Convection
C. Microwave

_____ 1. Conducts heat toward the center of the food, cooking from the inside to the outside of the food

_____ 2. Cooks food from the outside to the inside

_____ 3. Does not distribute heat uniformly in the oven

_____ 4. Designed for speed and convenience

_____ 5. Allows food to brown

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_____ 6. Creates heat in the food through the friction caused by vibrating food molecules

_____ 7. Circulates heated air around the food using a fan

_____ 8. Heats food from the outside to the inside

_____ 9. Allows for cooking frozen food without thawing

_____ 10. Uses radiant heat; transfers heat from hot burner or oven to the food

_____ 11. Cannot brown food or make food crisp

_____ 12. Browns food evenly without turning or shifting

_____ 13. Cooks food faster than in other ovens

_____ 14. Designed for cooking small and medium amounts of food

_____ 15. Reduces cooking times because of rapid air circulation

_____ 16. Allows foods to retain more nutrients

OBJECTIVE 9 **Evaluated on Assignment Sheet 5.**

OBJECTIVE 10 **Explain the roles of acids and bases.** Explain four (4) roles of acids and one (1) role of bases in the blanks provided.

Acids

1. ____

____

2. ____

____

3. ____

____

4. ____

____

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Bases – ______________________________

____

OBJECTIVE 11

Evaluated on Assignment Sheet 6.

OBJECTIVE 12

State the purposes of food additives. State six (6) purposes of food additives in the blanks provided.

1. ______________________________
2. ______________________________
3. ______________________________
4. ______________________________
5. ______________________________
6. ______________________________

OBJECTIVE 13

Discuss the advantages and disadvantages of food additives. Write a short paragraph about the advantages and disadvantages of food additives. Include at least two (2) of the advantages and disadvantages in your discussion. Give examples.

____

____

____

____

____

____

____

____

____

____

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OBJECTIVE 14

Characterize natural and artificial food additives. Write the letter "N" in front of the characteristics of natural additives and the letter "A" in front of the characteristics of artificial additives. Write in the blank before each numbered item.

_____ 1. manufactured from natural resources

_____ 2. are not found in nature

_____ 3. are not chemical free

_____ 4. are more economical to produce

_____ 5. are purer

_____ 6. are less economical to produce

_____ 7. maintain a more consistent quality

OBJECTIVE 15

Distinguish among processes for preserving foods. Write the name of the process in the blank below each statement.

1. Exposes food to gamma radiation, electron beams, or x-rays to extend the food's shelf life.

   ____

2. Involves soaking certain products in a solution of salt and water (called brine).

   ____

3. Preserves food by using substances that are naturally present in the food product. Certain foods contain microorganisms that produce substances that are poisonous to the microorganisms themselves.

   ____

4. Uses heat to destroy enzyme action and microorganisms; seals food in sterile, airtight containers to prevent contact with contaminants.

   ____

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5. Hot pack method requires precooking and uses foods which are loosely packed; cold pack method uses raw foods which are tightly packed; boiling water bath method uses low heat and is used for high-acid foods.

____

6. Removes water vapor from frozen foods, which prevents microbial growth.

____

7. Removes moisture to prevent the growth of microorganisms.

____

8. Preserves foods using added seasonings such as salt, sugar, acid, or spices, or using wood smoke.

____

9. Heavy salt concentration makes it impossible for microorganisms to draw water from the solution and prevents their growth.

____

OBJECTIVE 16

Evaluated on Assignment Sheet 7.

OBJECTIVE 17

Describe the impact of the freezing process on foods. Write a short answer to each question in the space provided.

1. What effect does freezing have on enzyme activity?

____

____

2. If done properly, does freezing have a significant effect on the nutritive value of major nutrients?

____

____

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3. What does freezing preserve in fresh products?

4. Why do slowly-frozen foods lose water content when they thaw?

5. What is lost in foods with a very high water content when they are frozen?

6. Why is slowly-frozen meat tough and dry?

7. Which causes less damage to the cells of foods: slow freezing or rapid freezing?

8. What can be done to fruits and vegetables before freezing to stop enzyme action?

OBJECTIVE 18 **Evaluated on Assignment Sheet 8.**

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OBJECTIVE 19

Explain the impact of factors affecting cooking rates and results. Write a short answer to each question in the space provided.

1. What is the relationship between surface area and cooking rate?

____

____

2. What is the relationship between a food's density and the time needed to cook it?

____

____

3. What can heat destroy in foods?

____

____

4. Which temperatures require more time for cooking: high temperatures or low temperatures?

____

____

5. Why do foods cooked in liquids take less time to cook at high altitudes?

____

____

6. Water can boil at lower temperatures during what kind of weather?

____

____

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7. What happens to the nutrients in plant and animal products that are cooked too long in a liquid?

____

____

8. What happens to the weight and size of meat when cooked?

____

____

OBJECTIVE 20 **Evaluated on Assignment Sheet 9.**

OBJECTIVE 21 **Evaluated on Assignment Sheet 10.**

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FOOD ADDITIVES AND THE FDA

Additives are not always by-products of 20th century technology or modern know-how. Our ancestors used salt to preserve meat and fish, added herbs and spices to improve the flavor of foods, preserved fruit with sugar, and pickled cucumbers in a vinegar solution.

Over time, however, improvements have been made in increasing the efficiency and ensuring the safety of additives. Today, food and color additives are more strictly regulated than at any other time in history. The basis of modern food law is the Federal Food, Drug, and Cosmetic (FD & C) Act which gives the Food and Drug Administration authority over food and food ingredients. It also defines requirements for truthful labeling of ingredients.

The Food Additives Amendment to the FD & C Act, passed in 1958, requires FDA approval for the use of an additive prior to its inclusion in food. It also requires the manufacturer to prove an additive's safety for the ways it will be used.

The Food Additives Amendment exempted two groups of substances from the food additive regulation process. All substances that the FDA and the U.S. Department of Agriculture (USDA) had determined were safe for use in a specific food prior to the 1958 amendment were designated "prior-sanctioned" substances. Examples of these are sodium nitrate and potassium nitrate used to preserve luncheon meats. A second category of substances excluded are generally recognized as safe, or GRAS, substances. GRAS substances are those whose use is generally recognized by experts as safe, based on their extensive history of use in food before 1958 or based on published scientific evidence. Salt, sugar, spices, vitamins, and monosodium glutamate are classified as GRAS substances, along with several hundred other substances. Manufacturers may also request the FDA to review the use of a substance to determine if it is GRAS.

Since 1958, the FDA and the USDA have continued to monitor all prior-sanctioned and GRAS substances in light of new scientific information. If new evidence suggests that any of these substances are unsafe, federal authorities can prohibit their use or require further studies to determine their safety.

In 1960, Congress passed similar legislation governing color additives. The Color Additive Amendments to the FD & C Act require dyes used in foods, drugs, cosmetics, and certain medical devices to be approved by the FDA prior to marketing. In contrast to food additives, colors in use before the legislation were allowed continued use only if they underwent further testing to confirm their safety. Of the original 200 provisionally-listed color additives, 90 have been listed as safe and the remainder have been removed from use.

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Both the Food Additives Amendment and the Color Additive Amendments include a provision which prohibits the approval of an additive if it is found to cause cancer in humans or animals. This clause is often referred to as the Delaney Clause, named for its Congressional sponsor, Rep. James Delaney.

Regulations known as Good Manufacturing Practices (GMP) limit the amount of food and color additives used in foods. Manufacturers use only the amount of an additive necessary to achieve the desired effect.

How are additives approved for use? To market a new food or color additive, a manufacturer must first petition the FDA for its approval. Approximately 100 new food additive petitions are submitted to the FDA annually. Most of these petitions are for indirect additives such as packaging materials which rub off on the food.

A food or color additive petition must provide convincing evidence that the proposed additive performs as it is intended. Animal studies using large doses of the additive for long periods are often necessary to show that the substance would not cause harmful effects at expected levels of human consumption. Studies of the additive in humans may also be submitted to the FDA.

In deciding whether an additive should be approved, the agency considers the composition and properties of the substance, the amount likely to be consumed, its probable long-term effects, and various safety factors. Absolute safety of any substance can never be proven. Therefore, the FDA must determine if the additive is safe under the proposed conditions of use, based on the best scientific knowledge available.

If an additive is approved, the FDA issues regulations that may include the types of food in which it can be used, the maximum amounts to be used, and how it should be identified on labels. Additives proposed for use in meat and poultry products also must receive authorization by the USDA. Federal officials then carefully monitor consumption of the new additive and results of any new research on its safety to ensure its use continues within safe limits.

In addition, the FDA operates an Adverse Reaction Monitoring System (ARMS) to help serve as an ongoing check of all additives. The system monitors and investigates all complaints by individuals or their physicians that are believed to be related to specific foods, color additives, or vitamin and mineral supplements. The ARMS computerized database helps officials decide whether reported adverse reactions represent a real public health hazard associated with food, so that appropriate action can be taken.

Source: Food and Drug Administration pamphlet, February 1994.

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TYPES OF FOOD ADDITIVES

- **antioxidant** – used to prevent rancidity, undesirable color and flavor changes in vegetables, fruit, and meat
- **humectant** – prevents foods from drying out and keeps foods soft
- **anti-caking** – added to powdered foods to keep them free flowing
- **leavening agents** – used to produce a variety of light bakery products. The leavening agents help produce carbon dioxide which enables the products to rise.
- **maturing and bleaching agents** – improves baking qualities and whitens flour and cheese
- **emulsifiers** – allows substances that are not naturally compatible to mix, such as oil and water. Used to evenly distribute fat and water-soluble ingredients throughout food to improve the texture, body, and volume of foods.
- **preservatives** – antimicrobial agents retard food spoilage caused by microorganisms
- **stabilizers and thickeners** – swell, thicken, and gel when mixed with water; create smooth, uniform consistency with body and texture; help keeps products soft and flexible
- **color** – used to enhance or correct the color of foods
- **flavor** – flavor additives are used to flavor or improve the flavor of foods. There are approximately 2000 flavor additives (which outnumber any of the other food additives).
- **sweeteners** – sweeteners are added to food to improve the flavor; they can be nutritive or non-nutritive
- **sequestrants** – chemicals added to food to bind metals such as calcium, cooper, iron. Helps prevent rancidity, staleness, and off flavors.
- **acids, alkalies and buffers** – used to control acids and add flavor and texture to foods
- **nutrients** – used to add nutritive value to foods through enrichment, restoration, fortification, and nutrification

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LAP SHEET

PROFILING FOOD PRODUCTS

6

Name ______________________________________

Check the blank as you complete each step.

1. **Take** _____ the pretest provided by your instructor. Have your instructor evaluate your completed test. After your test has been evaluated, follow your instructor's recommendations.
2. **Read** _____ the introduction, unit objective, and specific objectives.
3. **Do** _____ the focus assignments.
4. **Stop** _____ and have your instructor evaluate your work from the focus assignment. After your work has been evaluated, follow your instructor's recommendations.
5. **Study** _____ the Information Sheet, objective 1.
6. **Study** _____ the Information Sheet, objectives 2-6.
7. **Do** _____ Assignment Sheet 1.
8. **Stop** _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.
9. **Study** _____ the Information Sheet, objectives 8-12.
10. **Do** _____ Assignment Sheet 2.
11. **Stop** _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.
12. **Do** _____ Assignment Sheet 3.
13. **Stop** _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

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14. Take _____ the posttest provided by your instructor. Have your instructor evaluate your completed test. After your test has been evaluated, follow your instructor's recommendations.

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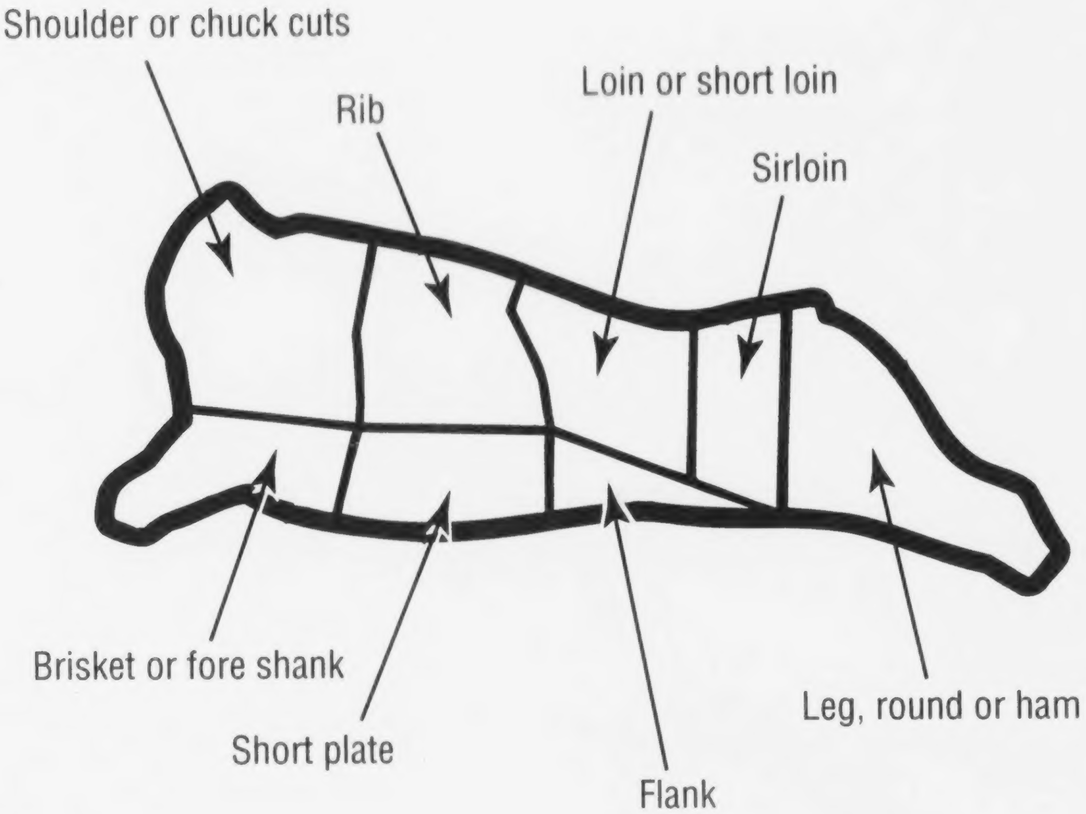
Beef, Pork, and Lamb Cuts


Shoulder or chuck cuts
Rib
Loin or short loin
Sirloin
Brisket or fore shank
Short plate
Flank
Leg, round or ham

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PROFILING FOOD PRODUCTS

Name ______________________ Date ______ Score ___

OBJECTIVE 1

Identify the tender and less tender cuts of beef, pork, and lamb. In the blank beside each item, write "T" for a tender cut or "LT" for a less tender cut.

Beef

_____ 1. Foreshank and Brisket

_____ 2. Rib

_____ 3. Round

_____ 4. Sirloin

_____ 5. Chuck

_____ 6. Short loin

Pork

_____ 7. Shoulder

_____ 8. Rib

_____ 9. Side

_____ 10. Loin

Lamb

_____ 11. Mutton

_____ 12. Rib

_____ 13. Shoulder

_____ 14. Leg

_____ 15. Loin

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OBJECTIVE 2

Distinguish among the quality grades of beef, lamb, pork, and poultry. Write the correct letter in each blank.

A. Beef
B. Lamb
C. Pork
D. Poultry

_____ 1. Quality grades are based on feathering (distribution of fat between the ribs), fat streaking in the flank, fullness and firmness of the flank, and conformation of the carcass. In order from highest to lowest quality, grades are: Prime, Choice, Good, Utility, and Cull.

_____ 2. In order from highest to lowest quality, grades are: U.S. Grade A (complete without deformities), U.S. Grade B (moderate deformities, moderately fleshed, may be partially disjointed), and U.S. Grade C (abnormal, poorly fleshed, lacking in fat with broken bones, discoloration, and missing parts).

_____ 3. Quality grades are based on carcass size, marbling, color, firmness, and moistness or dryness of the meat. In order from highest to lowest grade, grades are: U.S. #1, U.S. #2, U.S. #3, U.S. #4, Utility, and Cull.

_____ 4. Quality grades are based on age, marbling, color, external fat, firmness, and texture of the lean. In order from highest to lowest quality, grades are: Prime, Choice, Select, Standard, Commercial, Utility, Cutter, and Canner.

OBJECTIVE 3

Distinguish between fish and shellfish. Write the correct letter in each blank.

_____ 1. Fins and a center spine with bones define a:

a. Fish
b. Shellfish
c. Mollusk
d. Crustacean

_____ 2. A shell but no spine or bones defines a:

a. Mollusk
b. Fish
c. Crustacean
d. Shellfish

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_____ 3. A shellfish enclosed in a rigid outer shell is a:

a. Shellfish
b. Crustacean
c. Mollusk
d. Fish

_____ 4. A crustacean is defined as:

a. a shellfish with an outer segmented shell.
b. having a shell but no spine or bones.
c. a shellfish enclosed in a rigid outer shell.
d. having fins and a center spine with bones.

OBJECTIVE 4

Distinguish among common forms of fresh fish products. Write the correct letter in each blank.

A. Blocks
B. Dressed
C. Fillet
D. Portions
E. Steak
F. Sticks
G. Whole

_____ 1. May appear just as it was caught, requiring scales and insides to be removed; or, may be cleaned and gutted, then canned or frozen with the bones

_____ 2. Ready for cooking with head, tail, fins, scales, and insides removed

_____ 3. Sides of the fish cut away from the spine; usually boneless

_____ 4. Boneless fillets put together in a frame, compressed slightly, and frozen into a solid fish form

_____ 5. Fish blocks cut into individual serving pieces, then battered, breaded, packed and refrozen

_____ 6. Cross-section slices of dressed fish

_____ 7. Fish blocks cut into various shaped serving pieces, then battered, breaded, packed and refrozen

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OBJECTIVE 5

List point-of-purchase nutrition information for raw meats and poultry.

OBJECTIVE 6

Match forms of milk to their descriptions. Write the correct letter in each blank.

A. Acidophilus
B. Buttermilk
C. Concentrated milk
D. Coffee cream (light cream)
E. Sour cream
F. Whipping cream (heavy cream)
G. Half-and-half
H. Evaporated milk
I. Flavored milk
J. Fortified milk
K. Homogenized milk
L. Ice cream
M. Low-fat milk
N. Pasteurized milk
O. Skim milk
P. Sweetened condensed milk
Q. Whole milk
R. Yogurt

_____ 1. Milk that has less than 1/2 percent milkfat solids

_____ 2. Milk to which a pure bacteria has been added to aid in digestion

_____ 3. Milk with less than 3.25 percent milkfat solids (or whatever the label declares: 2%, 1%, or 1/2 percent)

_____ 4. Cream that has been treated with lactic-acid bacteria and that contains 18 percent fat

_____ 5. Milk to which vitamin D has been added

_____ 6. A frozen milk product with a high fat and sugar content to make it creamy and give it a rich flavor

_____ 7. Milk that has been heated to destroy harmful bacteria

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_____ 8. Cream that contains 18-30 percent fat

_____ 9. Milk with 3.25 percent milkfat solids; usually homogenized

_____ 10. Milk that has had its water content reduced; available in canned form (evaporated milk and sweetened condensed milk) and dried form (nonfat dry milk)

_____ 11. Milk made from pasteurized skim milk which has been treated with bacteria

_____ 12. Cream that contains at least 36 percent fat

_____ 13. A milk product made by fermenting partially skimmed milk with a special acid-forming bacteria

_____ 14. A blend of milk and cream having 10-12 percent milkfat

_____ 15. Milk that has been processed so that the cream will not rise to the surface

OBJECTIVE 7 **Evaluated on Assignment Sheet 1.**

OBJECTIVE 8 **Identify ways of classifying vegetables.** Write an "X" in the blank beside each vegetable classification.

_____ 1. Green

_____ 2. Root

_____ 3. Convenience

_____ 4. White

_____ 5. Fruit

_____ 6. Yellow

_____ 7. Size

_____ 8. Mild flavor

_____ 9. Flower

_____ 10. Texture

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_____ 11. Red

_____ 12. Leaf

_____ 13. Seed

_____ 14. Cooking method

_____ 15. Strong flavor

_____ 16. Stem

OBJECTIVE 9

Distinguish among ways in which fruits or vegetables are processed. Write the correct letters in the blanks.

A.	Blending	H.	Shelling
B.	Baking	I.	Shredding
C.	Dried	J.	Slicing
D.	Halves	K.	Whole
E.	Juices		
F.	Peeling		
G.	Purees		

_____ 1. Fruits and vegetables which are peeled but are not reduced in size before processing.

_____ 2. Extracted by compression forces, this popular processing method consists of extraction, clarification (filtering), taking the air out, pasteurizing (killing enzymes), concentration, essence add-back, then canning, bottling, and freezing if desired.

_____ 3. Dehulling accomplished by exposure to infrared radiation (IR) for 15-65 seconds, and holding to cool from 0-20 minutes in a well-insulated container.

_____ 4. Processing using opposing blades to chop the fruits or vegetables.

_____ 5. Foods extracted or processed with compression and shearing.

_____ 6. Method of cutting fruits and vegetables, either in half, dicing into tiny cubes, or flaking; products can be canned, frozen, or dried.

_____ 7. Foods extracted or processed by compression, such as fruit leathers, and those processed by shearing forces.

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OBJECTIVE 10

Identify types of grains. Write the correct letters in the blanks.

A. Barley
B. Beans
C. Bran
D. Corn
E. Oats
F. Peas
G. Rice
H. Rye
I. Wheat

_____ 1. Extremely hard hull; used for making flour, breakfast cereals, and pasta; highest protein value of any cereal grain

_____ 2. Used mainly for bread flour; stronger flavor, low protein content; available in light or dark

_____ 3. Often used as a vegetable; also used to make breakfast cereals, cornmeal, grits, and hominy

_____ 4. Used in breakfast cereals and as an ingredient in baked products; the bran has a high fiber content and possible cholesterol-lowering effect

_____ 5. "Banana shaped" hull; available in three sizes – short grain, medium, and long grain

_____ 6. Used in baby foods and for the production of malt

OBJECTIVE 11

Distinguish among types of flour by their uses. Write the correct letters in the blanks.

A. All-purpose flour
B. Bread flour
C. Cake flour
D. Durum flour
E. Enriched flour
F. Self-rising flour
G. White flour
H. Whole-wheat flour

_____ 1. Flour made from hard red wheat; high in protein; used for pasta

_____ 2. Milled from hard wheat and fairly high in protein; used mainly by bakeries

_____ 3. Milled and sifted wheat; may be bleached or unbleached

_____ 4. White flour to which the B vitamins thiamin, riboflavin, and niacin and the mineral iron have been added; calcium and vitamin D may also be added

May be photocopied for student use.

_____ 5. A blend of hard and soft wheats which contain a moderate amount of gluten (protein); used for making breads, pastries, cookies, and cakes

_____ 6. Milled from soft wheats and fairly low in protein content; soft and silky; used for baked products, especially cakes

_____ 7. Flour to which a leavening agent (baking powder or baking soda) have been added

_____ 8. Milled wheat in which the natural parts of the wheat grain remain unaltered; has a coarser texture and nut-like flavor

OBJECTIVE 12

Distinguish among natural and artificial sweeteners in foods. Write "N" in the blanks in front of natural sugars, and "A" in the blanks in front of artificial sweeteners.

_____ 1. Acesulfame K – High intensity sweetener, is suitable for use in cooking and baking, has none of the drawbacks of saccharin

_____ 2. Aspertame – High intensity sweetener, breaks down when exposed to high heat for a period of time, not suitable for use in baked products

_____ 3. Dextrose – Glucose found in sweet fruits and some vegetables

_____ 4. Fructose – Fruit sugar found in ripe fruits, many vegetables, and honey

_____ 5. Lactose – Sugar found in milk

_____ 6. Maltose – Malt sugar found in cereal grains

_____ 7. Saccharin – High intensity sweetener, can be used in cooking and baking, has a bitter aftertaste, studies indicate that it causes cancer in laboratory animals

_____ 8. Sucrose – Can be processed into granulated sugar, found in sugar cane, sugar beets, some other vegetables, and many fruits

OBJECTIVE 13

Evaluated on Assignment Sheet 2.

May be photocopied for student use.

OBJECTIVE 14 **Evaluated on Assignment Sheet 3.**

May be photocopied for student use.

CAREERS IN AGRICULTURE

The field of agriculture is exceptionally broad, covering production, processing, distribution, sales, and consumption of hundreds of commodities and products. For purposes of this discussion, it is convenient to define five large categories: production, processing, sales, supporting services and corollary activities.

Production of agricultural commodities at the farm is the fundamental operation on which all other related enterprises are based. Farm commodities typically produced are livestock (cattle, pigs and sheep), milk from dairy cattle, eggs and poultry, meat, grains (corn, barley, rye, wheat, and rice), oil seeds (soybeans, peanuts, and cottonseed), fiber (cotton, wool and mohair), horticultural crops (fruits, vegetables and nuts), and forage crops. In addition, smaller units produce fish, honey, goat milk, seed, etc.

With rare exception, agricultural commodities must go through one or more *processing* procedures before they are in final forms for consumption. Eggs must be washed, graded and packaged; milk must be pasteurized and homogenized; fruits and vegetables must be cleaned, sorted, canned, and packaged, etc. Oil seeds must be fractionated into oil and meal, cotton must be separated into seed and fiber, and each must be further processed. Feed and food grains must be converted into different forms for consumption by animals or humans.

Following processing, agricultural products must be distributed and *sold* to intermediate or final consumers. Supermarkets and other retail outlets account for most of food sales, while feed mills and feed stores sell much of the livestock and poultry feed. A substantial portion of our food and feed grains and our cotton fiber go to international markets, and we import, for processing and resale, considerable agricultural commodities from foreign sources.

Production, processing and sale of agricultural commodities require a vast array of *supporting services*. Production machinery, fertilizers, insecticides, processing equipment, storage units, slaughter plants, distribution centers, animal feed supplements, and veterinary supplies are but a few of the many enterprises necessary in the agricultural chain of events.

In addition to the foregoing categories, there are many *corollary activities* required by a successful national agricultural system. Farm credit, banking and financial services, transportation, adequate road and rail systems, regulatory services, government agencies and educational programs (teaching, research and extension) are all vital to a viable, sustained agriculture.

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Careers in the agricultural field include the following:

Production of Agricultural Commodities

- Agronomic crops
  - Wheat
  - Cotton
  - Sorghum
  - Corn
  - Small grains
  - Oilseeds
- Horticultural crops
  - Vegetables
  - Fruits
  - Nuts
  - Flowers
- Forage crops
  - Pastures
  - Hays
  - Silages
- Livestock
  - Beef cattle (feeder calves and feedlot)
  - Dairy cattle
  - Swine
  - Sheep
  - Goats
  - Fish
  - Bees
  - Poultry (broilers and eggs)

Processing of Agricultural Commodities

- Food
  - Horticultural products
  - Meats and by-products
  - Milk and milk products
  - Poultry
- Fiber
  - Cotton
  - Wool
  - Mohair
  - Synthetic blends
- Milling
  - Flour
  - Feed
  - Oil and oil meals

Sales

- Raw farm commodities
- Processed products
- Supplies and equipment needed for production and processing

Supporting Services

- Manufacture of machinery for production and processing
- Production inputs
  - Fertilizers
  - Farm chemicals
  - Feeds
  - Seeds
  - Veterinary

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Corollary Activities

- Finance
- Transportation
- Government
  - ☐ Regulatory agencies
  - ☐ Marketing
  - ☐ Policy
  - ☐ Reporting systems
  - ☐ International activities
- Education
  - ☐ Research
  - ☐ Extension
  - ☐ Teaching
- Communication

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LAP
SHEET

MAKING HEALTHY FOOD CHOICES

7

Name ____________________

Check the blank as you complete each step.

1. Take	____	the pretest provided by your instructor. Have your instructor evaluate your completed test. After your test has been evaluated, follow your instructor's recommendations.
2. Read	____	the introduction, unit objective, and specific objectives.
3. Do	____	the focus assignments.
4. Stop	____	and have your instructor evaluate your work from the focus assignment. After your work has been evaluated, follow your instructor's recommendations.
5. Study	____	the Information Sheet, objective 1.
Optional: Watch	____	the video *Nutrition in the Fast Lane*. Ask your instructor if a copy is available.
Optional: Watch	____	the video *Women and Nutrition*. Ask your instructor if a copy is available.
6. Study	____	the Information Sheet, objective 2.
Optional: Interview	____	the director of dietetics from a local hospital about how dietary guidelines can be incorporated into an enjoyable diet.
7. Study	____	the Information Sheet, objective 3.

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Optional:
Calculate _____ the number of grams of fat that provide 30% of calories in your daily diet. Complete the following steps: (1) Multiply the total day's calories by 0.30 to get calories from fat per day. For example: 2,200 calories X 0.30 = 660 calories from fat. (2) Divide calories from fat per day by 9 (each gram of fat has 9 calories) to get grams of fat per day. For example: 660 calories from fat divided by 9 = 73 grams of fat.

Optional:
Watch _____ the video *Break Your Behavior Chains.* Ask your instructor if a copy is available.

8. Study _____ the Information Sheet, objective 4.

Optional:
Watch _____ the video *The Food Guide Pyramid.* Ask your instructor if a copy is available.

Optional:
Classify _____ examples of your favorite foods according to the Food Guide Pyramid.

9. Study _____ the Information Sheet, objective 5.

10. Study _____ the Information Sheet, objective 6. Note that the Dietary Guidelines for Americans offer a guide to the foods that should be included daily in meals. While eating food from the basic food groups in the amounts given in the Food Guide Pyramid is not the only way to maintain a healthy diet, following the guidelines will form a foundation for a diet that provides the essential nutrients.

Optional:
Watch _____ the video *How to Read the New Food Label.* Ask your instructor if a copy is available.

Optional:
Watch _____ the video *Smart Supermarket Shopping with the New Food Label.* Ask your instructor if a copy is available.

Optional:
Watch _____ the video *The Complete Guide to Nutrition Food Labels: The Inside Story of What's Inside.* Ask your instructor if a copy is available.

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11. **Do** ____ Assignment Sheet 1. Obtain a copy of Handout 1, "Nutrition Facts," from your instructor.

12. **Stop** ____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

13. **Study** ____ the Information Sheet, objective 8.

Optional: Plan ____ a meal for a specific life stage based on the needs of that stage. Ask your instructor to review your plan.

Optional: Read ____ Handout 2, "Nutrition and Cognitive Development in Children." Obtain a copy from your instructor.

Optional: Interview ____ a child development specialist about the relationship between nutrition and cognitive development in children.

Optional: Interview ____ a dietician about the reasons a person might require a special diet. Then, plan and prepare a meal acceptable for people on a special diet.

14. **Do** ____ Assignment Sheet 2.

15. **Stop** ____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

16. **Study** ____ the Information Sheet, objective 10.

Optional: Experiment ____ with eggs and egg substitutes. Compare the differences in taste, texture, nutrition, and overall product appearance.

Optional: Research ____ the various vegetarian diets, the foods that can be substituted in a vegetarian diet, and the benefits and risks of such diets. Present your findings to your instructor.

17. **Do** ____ Assignment Sheet 3.

18. **Stop** _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

19. **Study** _____ the Information Sheet, objective 12.

Optional: _____ Uncover one other fallacy and its corresponding facts. Present your results to your instructor.

Optional: Watch _____ the video *The 7 Most Popular Nutrition Myths.* Ask your instructor if a copy is available.

20. **Study** _____ the Information Sheet, objective 13. As your lifestyle changes, food habits often change as well. Think how your lifestyle might affect nutrition when you leave home. What steps can you take to make certain you maintain a healthy lifestyle today and in the future?

Optional: Watch _____ the video *Fad Versus Fit: Your Lifetime Fight Against Fat.* Ask your instructor if a copy is available.

21. **Study** _____ the Information Sheet, objective 14.

Optional: Research _____ and gather information about eating disorders. Find out what the characteristics of sufferers often are, what are symptoms of these disorders, how they are cured, and what health risks are associated with each. Present your findings to your instructor. For more information on eating disorders, contact the National Association of Anorexia Nervosa and Associated Disorders (ANAD), P.O. Box 7, Highland Park, IL 60035, phone 708-831-3438.

Optional: Watch _____ the video *Eating: Out of Control.* Ask your instructor if a copy is available.

22. **Do** _____ Assignment Sheet 4.

23. **Stop** _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

24. **Do** _____ Assignment Sheet 5.

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25. Stop ____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

26. Take ____ the posttest provided by your instructor. Have your instructor evaluate your completed test. After your test has been evaluated, follow your instructor's recommendations.

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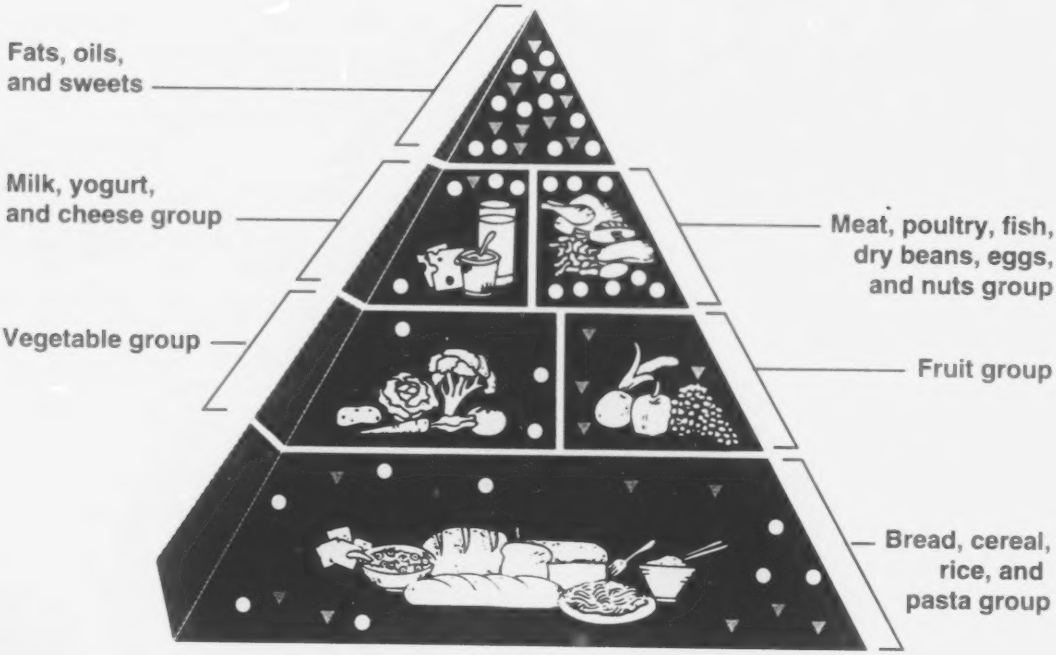
The Food Guide Pyramid

KEY
○ Fat (naturally occurring and added)
▽ Sugars (added)
These symbols show fats, oils and added sugars in foods.


Fats, oils, and sweets
Milk, yogurt, and cheese group
Vegetable group
Meat, poultry, fish, dry beans, eggs, and nuts group
Fruit group
Bread, cereal, rice, and pasta group

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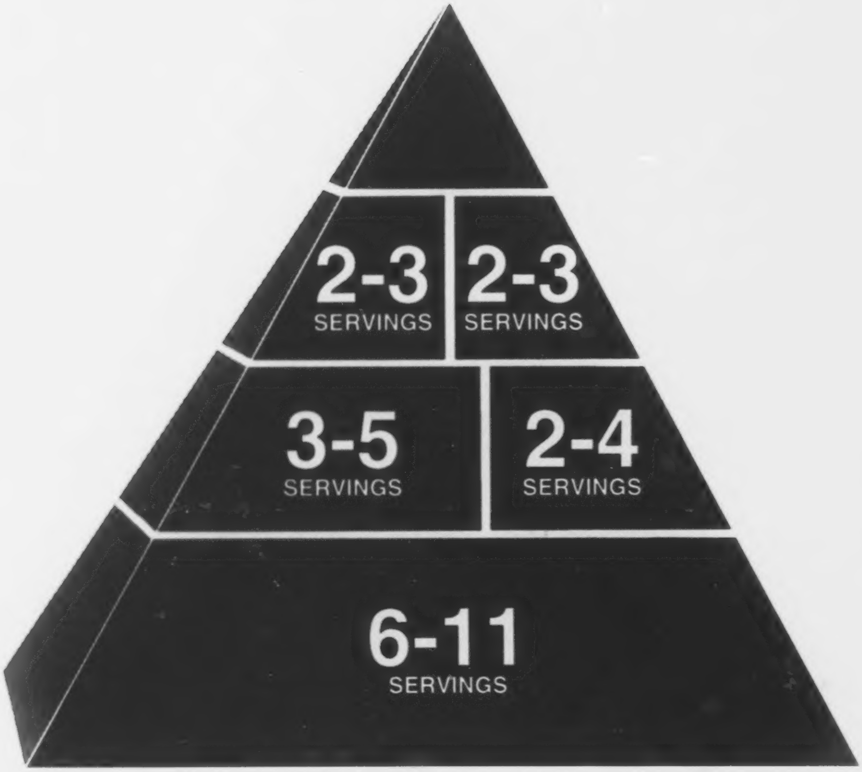
Number of Servings


2-3
SERVINGS
2-3
SERVINGS
3-5
SERVINGS
2-4
SERVINGS
6-11
SERVINGS

May be photocopied for student use.

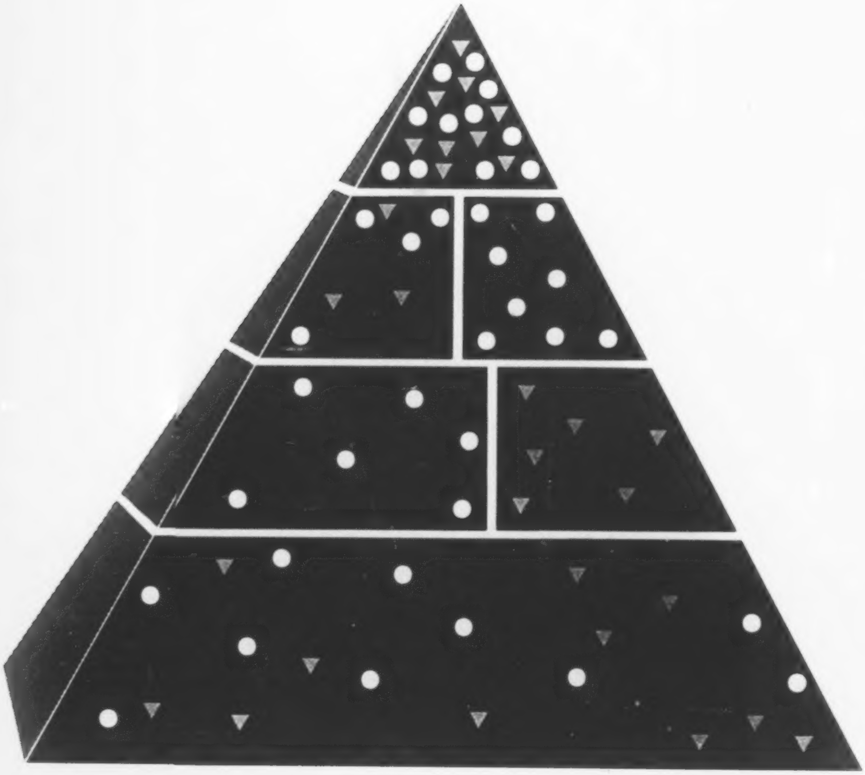
Fat and Added Sugars

KEY

○ Fat (naturally occurring and added)

▽ Sugars (added)

These symbols show fats, oils and added sugars in foods.



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MAKING HEALTHY FOOD CHOICES

Name ______________________ Date ________ Score ___

OBJECTIVE 1

Discuss the relationship between good nutrition and good health. Answer each question in the space provided.

1. What is one of the risk factors for osteoporosis?

____

____

2. Why is it important to have adequate calcium intake throughout life?

____

____

3. What effect can high levels of sodium have on blood pressure?

____

____

4. What diets increase the risk of some types of cancer, such as cancer of the colon and prostate?

____

____

5. You can decrease the risk of coronary heart disease through what kind of diet?

____

____

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OBJECTIVE 2

State Dietary Guidelines for Americans. Write the correct Dietary Guideline in the space below each benefit.

1. to get the energy, protein, vitamins, minerals, and fiber you need for good health.

   ____

2. to reduce your chances of having high blood pressure, heart disease, a stroke, certain cancers, and the most common kind of diabetes.

   ____

3. to reduce your risk of heart attack and certain types of cancer.

   ____

4. to provide needed vitamins, minerals, fiber, and complex carbohydrates, and to help you lower your intake of fat.

   ____

5. to help reduce your risk of high blood pressure.

   ____

OBJECTIVE 3

Explain the Dietary Guidelines' recommendation for limiting fat and saturated fat. Explain each item in the space provided.

1. Recommendation

   ____

   ____

2. Sources of additional fat

   ____

   ____

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OBJECTIVE 4

Interpret the Food Guide Pyramid. Answer each question in the blanks provided.

1. What do the foods in Levels 1-3 of the Pyramid represent?

____

____

2. As you move up from the foundation of the Pyramid, what happens to the number of servings you should eat at each level?

____

____

3. As you move up from the foundation of the Pyramid, what happens to the amount of fat and added sugars in the foods at each level?

____

____

4. According to the Pyramid, how can you get the nutrients you need as well as the number of calories needed to maintain a healthy weight?

____

____

OBJECTIVE 5

Compare the nutritional value of the major food groups. Write the correct letters in the blanks.

A. Bread, Cereal, Rice, and Pasta
B. Fruits
C. Meat, Poultry, Fish, Dry Beans, Eggs, and Nuts
D. Milk, Yogurt, and Cheese
E. Other
F. Vegetables

_____ 1. Supply protein; provide B vitamins, iron, and zinc

_____ 2. Provide complex carbohydrates; provide B vitamins, minerals, and iron; are a good source of dietary fiber

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_____ 3. Provide important amounts of vitamins A and C and potassium; are low in fat and sodium

_____ 4. Provide protein, vitamins A and D, and minerals; are good sources of calcium; are available in low fat varieties

_____ 5. Provide vitamins A and C, folate, and minerals; are naturally low in fat; provide fiber in the diet

OBJECTIVE 6

Define serving sizes for the Food Guide Pyramid. Give one option for one serving from each of the food groups.

1. Bread, Cereal, Rice, and Pasta

____

2. Vegetables

____

3. Fruit

____

4. Milk, Yogurt, and Cheese

____

5. Meat, Poultry, Fish, Dry Beans, Eggs, and Nuts

____

OBJECTIVE 7

Evaluated on Assignment Sheet 1.

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OBJECTIVE 8 **Profile nutritional needs over the life cycle.** Write the letter of the correct life cycle stage in each blank.

A. Adolescence
B. Adulthood
C. Childhood
D. Infancy
E. Older adults

_____ 1. Greater need for nutrient-dense foods

_____ 2. Solid foods (at approximately six months of age)

_____ 3. Energy needs decline due to a decrease in activity level

_____ 4. Sufficient calories to lead to a steady weight gain

_____ 5. Increased supply of protein, minerals, and vitamins

_____ 6. Energy requirements decrease in largest amounts

_____ 7. High percentage of proteins, vitamins, and minerals to promote growth and development

_____ 8. Increased needs for protein, vitamin A, vitamin C, vitamin B-6, vitamin B-12, and calcium

_____ 9. More calories to meet growth spurt needs

_____ 10. Well-balanced meals and snacks

_____ 11. Whole milk

OBJECTIVE 9 **Evaluated on Assignment Sheet 2.**

OBJECTIVE 10 **State healthy substitutes for specific foods.** Write the healthy substitute for each of the foods listed in the space provided.

1. whole eggs –

____

____

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2. one whole egg –

3. sour cream –

4. cream in most sauces (but in a smaller amount) –

5. ricotta cheese –

6. melted shortening (but not for a solid fat in baking) –

7. half the amount of all-purpose flour –

8. butter –

OBJECTIVE 11 **Evaluated on Assignment Sheet 3.**

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OBJECTIVE 12

Distinguish nutrition facts from fallacies. Write an "X" in the blank if the statement represents a fact.

_____ 1. A fad diet is a nutritionally sound way to lose weight.

_____ 2. It is the fat often used in cooking starchy foods, in addition to the sauces and butter often served with them, that are fattening.

_____ 3. No scientific proof exists of any benefit to most people from diet pills.

_____ 4. Diet pills are a safe and effective way to lose weight.

_____ 5. People who take diet pills often regain weight faster than dieters who only temporarily change their eating habits.

_____ 6. Eating a completely fat-free diet is a wise choice.

_____ 7. Fad diets do not contain all of the necessary nutrients.

_____ 8. Taking a multi-purpose vitamin every day is a healthy substitute for eating a variety of foods.

_____ 9. Initial weight loss is mostly water loss. Most weight loss is quickly regained after fad dieting is over.

_____ 10. The body needs some fat to store energy, to circulate fat-soluble vitamins, and to support cell walls.

_____ 11. Foods that are starchy in nature, like potatoes, pasta, and bread, are fattening.

_____ 12. Starchy foods are generally low in fat and high in complex carbohydrates and fiber.

_____ 13. Large doses of vitamin C can help prevent and cure the common cold.

_____ 14. Eating a variety of foods is the best way to get all the nutrients the body needs.

_____ 15. Large doses of vitamin C have been linked to the formation of kidney stones, stomach illnesses, and other health problems.

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OBJECTIVE 13

Discuss the impact of lifestyle on nutrition. Answer each question in the space provided.

1. What factors often influence your food choices (and your resulting nutrition)?

   ____

   ____

2. Your food preferences and eating habits may be similar to those of whom?

   ____

   ____

3. What limitations might affect food preparation in single parent families?

   ____

   ____

4. What is often the "trade-off" in families with two working parents?

   ____

   ____

5. How does society's mobility affect nutrition?

   ____

   ____

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OBJECTIVE 14 **Distinguish between eating disorders.** Write the correct letter in each blank.

A. Anorexia nervosa
B. Bulimia

_____ 1. Person is very fearful of being "fat" (even when the person is extremely underweight), eats little or nothing, has eating "rituals" (such as cutting food into little pieces or eating very slowly), exercises as much as possible to burn calories, and denies being hungry

_____ 2. Individual is often employed in work requiring low weight (such as models, jockeys, dancers)

_____ 3. Individual affected often loses 25 percent or more of body weight

_____ 4. Eating large quantities of food and eliminating the food; also called the binge/purge syndrome

_____ 5. Self-imposed starvation

_____ 6. Individual affected eats large amounts of food at one time, then eliminates the food by inducing vomiting, using laxatives, and/or using diuretics

_____ 7. Usually affects females

OBJECTIVE 15 **Evaluated on Assignment Sheet 4.**

OBJECTIVE 16 **Evaluated on Assignment Sheet 5.**

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"Nutrition Facts"

from

Focus on Food Labeling

FDA Consumer: An FDA Consumer Special Report

May 1993

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'NUTRITION FACTS'

To Help Consumers Eat Smart

by Paula Kurtzweil

Susan Thom, of Parma, Ohio, knows how important it is for people to know the number of calories from fat they eat each day.

As a registered dietitian, she counsels patients on the need to limit fat consumption to 30 percent or less of total daily calories. As a person with diabetes, and thus at increased risk for heart disease, she strives to do the same for herself.

But, in the past, obtaining that information from the food label has required some mathematical skill—namely, multiplying the total grams (g) of fat in a serving by 9, since 1 g of fat contains 9 calories.

"It does take time," Thom said. "But if you want to feed yourself well, you have to look at the label."

Help is on the way. For Thom and millions of other Americans who seek to restrict their fat intake to recommended levels, a new dietary component is being added to the food label—"calories from fat."

It's just one of many new items of diet-related information manufacturers are required to offer on their food products by 1994. There also will be information on saturated fat, cholesterol, dietary fiber, and other nutrients that relate to today's health concerns, such as heart disease, cancer, and other diseases linked, at least in part, to diet.

There will be more complete nutrient content information because almost all the required nutrients will have to be listed as a percent of the Daily Value. There will be more uniform serving sizes, too, which will make nutritional comparisons between foods easier. And, because nutrition labeling is now mandatory for almost all processed foods, there will be a lot more products with this important information.

"The new information is going to be very helpful for consumers," said Virginia Wilkening, a registered dietitian in FDA's Office of Food Labeling.

"Some of the nutrients—saturated fat and cholesterol—have been allowed on the label before but on a voluntary basis," she said. "Dietary fiber and sugars were not allowed in the nutrition label. With the new label, consumers will soon have information about these and other nutrients, which can help them choose their foods more wisely."

The new requirements for nutrition labeling are spelled out in regulations issued in January 1993 by FDA and the U.S. Department of Agriculture's Food Safety and Inspection Service (FSIS). FDA's regulations meet the provisions of the Nutrition Labeling and Education Act of 1990 (NLEA), which, among other things, requires FDA to make nutrition labeling mandatory for almost all processed foods. FSIS' regulations, which cover meat and poultry products, largely parallel FDA's. (Meat and poultry products were not covered by NLEA.)

FDA has set May 8, 1994, as the date by which food manufacturers must comply with the new nutrition labeling regulations. FSIS requires meat and poultry processors to relabel their products by July 6, 1994. However, some newly labeled products may begin appearing in grocery stores much sooner than the deadlines.

Dietary Components

What can consumers expect? First, they will see a new name for the nutrition panel. It used to go by "Nutrition Information Per Serving." Now, it will be called "Nutrition Facts." That title will

Old Label

NUTRITION INFORMATION	PER SERVING
SERVING SIZE	5 OZ.
SERVINGS PER CONTAINER	4
CALORIES	250
PROTEIN	9g
CARBOHYDRATE	19g
FAT	11g
SODIUM	530mg

PERCENTAGE OF U.S. RECOMMENDED DAILY ALLOWANCES (U.S. RDA)	
PROTEIN	10
VITAMIN A	*
VITAMIN C	*
THIAMINE	8
RIBOFLAVIN	15
NIACIN	2
CALCIUM	20
IRON	4

*CONTAINS LESS THAN 2% OF THE U.S. RDA OF THIS NUTRIENT

Starting this year, the 'old' nutrition label format above will be replaced by the one on the right. Both labels are for a frozen macaroni and cheese product.

BEST COPY AVAILABLE

Key Aspects of the New Nutrition Label

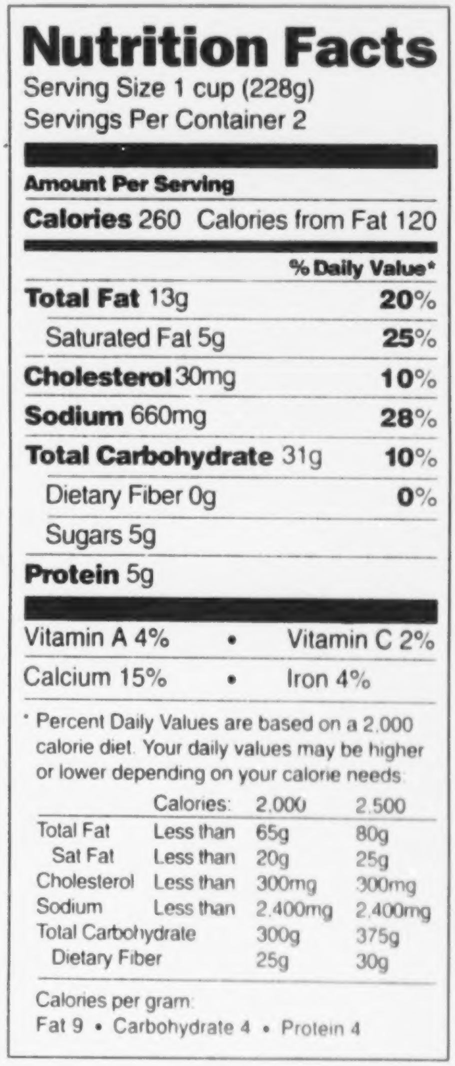
A number of consumer studies conducted by FDA, as well as outside groups, enabled FDA and the Food Safety and Inspection Service of the U.S. Department of Agriculture to agree on a new nutrition label. The new label is seen as offering the best opportunity to help consumers make informed food choices and to understand how a particular food fits into the total daily diet.

New heading signals a new label. →

More consistent serving sizes, in both household and metric measures, replace those that used to be set by manufacturers. →

Nutrients required on nutrition panel are those most important to the health of today's consumers, most of whom need to worry about getting too much of certain items (fat, for example), rather than too few vitamins or minerals, as in the past. →

Conversion guide helps consumers learn caloric value of the energy-producing nutrients. →



Nutrition Facts

Serving Size 1 cup (228g)
Servings Per Container 2

Amount Per Serving

Calories 260 Calories from Fat 120

	% Daily Value*
Total Fat 13g	**20**%
Saturated Fat 5g	**25**%
Cholesterol 30mg	**10**%
Sodium 660mg	**28**%
Total Carbohydrate 31g	**10**%
Dietary Fiber 0g	**0**%
Sugars 5g	
Protein 5g	

Vitamin A 4% • Vitamin C 2%
Calcium 15% • Iron 4%

* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

← **New mandatory component helps consumers meet dietary guidelines recommending no more than 30 percent of calories from fat.**

← **%Daily Value shows how a food fits into the overall daily diet.**

← **Reference values help consumers learn good diet basics. They can be adjusted, depending on a person's calorie needs.**

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TYPES OF LABELS

A tabular format label (top) is allowed on packages, such as this can of tuna, that have less than 40 square inches for nutrition labeling. A simplified nutrition label (bottom), in which information about some nutrients otherwise required in nutrition labeling is omitted, will appear on labels of foods such as this can of cola, that do not contain significant amounts of certain nutrients.

PACKED
IN
WATER
TUNA
LIGHT CHUNK

Nutrition Facts
Serv. Size 1/3 cup (56g)
Servings about 3
Calories 80
Fat Cal. 10
*Percent Daily Values (DV) are based on a 2,000 calorie diet.

Amount/serving	**% DV***	**Amount/serving**	**% DV***
Total Fat 1g	**2**%	**Total Carb.** 0g	**0**%
Sat.Fat 0g	**0**%	Fiber 0g	**0**%
Cholest. 10mg	**3**%	Sugars 0g	
Sodium 200mg	**8**%	**Protein** 17g	

Vitamin A 0% • Vitamin C 0% • Calcium 0% • Iron 6%

COLA
NEW!
NEW COLA TASTE!

Nutrition Facts
Serving Size 1 can (360 mL)

Amount Per Serving	
Calories 140	
	% Daily Value*
Total Fat 0g	**0**%
Sodium 20mg	**1**%
Total Carbohydrate 36g	**12**%
Sugars 36 g	
Protein 0g	**0**%

* Percent Daily Values are based on a 2,000 calorie diet.

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signal to consumers that the product is newly labeled according to FDA and FSIS' new regulations.

The new panel will be built around a new set of dietary components. (See graphic, page 35.) The mandatory (underlined) and voluntary dietary components and order in which they must appear are:

- total calories
- calories from fat
- calories from saturated fat
- total fat
- saturated fat
- stearic acid (on meat and poultry products only)
- polyunsaturated fat
- monounsaturated fat
- cholesterol
- sodium
- potassium
- total carbohydrate
- dietary fiber
- soluble fiber
- insoluble fiber
- sugars
- sugar alcohol (for example, the sugar substitutes xylitol, mannitol and sorbitol)
- other carbohydrate (the difference between total carbohydrate and the sum of dietary fiber, sugars, and sugar alcohol, if declared)
- protein
- vitamin A
- percent of vitamin A present as beta carotene
- vitamin C
- calcium
- iron
- other essential vitamins and minerals.

If a food is fortified or enriched with any of the optional components, or if a claim is made about any of them, the pertinent nutrition information then becomes mandatory.

These mandatory and voluntary components are the only ones allowed on the nutrition panel. The listing of single amino acids, maltodextrin, calories from polyunsaturated fat, and calories from carbohydrate, for example, may not appear on the label.

The reason, according to Wilkening, is to help consumers focus on nutrients of public health significance. "Too much additional information could clutter the label or mislead or confuse the consumer," she said.

Nutrients required on the label, she pointed out, reflect current public health concerns and coincide with current public health recommendations. She noted that the order in which the food components and nutrients are required to appear reflects their public health significance and the order in which they were specified in NLEA.

On the new food label, the listing of thiamin, riboflavin and niacin will not be mandatory. Under the old nutrition labeling program, these vitamins were required to be listed. But because deficiencies of these are no longer a public health problem in this country, listing them is now optional.

New Format

Consumers also will see a new format, one that calls for many of the macronutrients (such as fat, cholesterol, sodium, carbohydrate, and protein) to be declared as a percent of the Daily Value—a new label reference value. The amount, in grams or milligrams per serving, of these nutrients still must be listed to their immediate right. But, for the first time, a column headed "%Daily Value" will appear.

According to Wilkening, the percent declaration of the Daily Value offers an advantage over amount declaration: The percent Daily Values put the nutrients on an equal footing in the context of a total daily diet.

For example, she said, a food is low in sodium if it has less than 140 mg of sodium. "But people look at that number, 140, and think it's a tremendous amount, when it actually is less than 6 percent of the Daily Value."

On the other hand, she said, a food with 5 g of saturated fat could be construed as being low in that nutrient just because 5 is a small number. Actually, that food would provide one-fourth the total Daily Value of 20 g of saturated fat for a 2,000-calorie diet.

"People are affected by the size of numbers," she said. "That's why percentages are helpful. They put all of the nutrients on a level playing field."

The percent Daily Value listing will carry a footnote stating that the percentages are based on a 2,000-calorie diet and that a person's individual dietary goal is based on his or her calorie needs. Some nutrition labels—at least those on larger packages—will list daily values for selected nutrients for a 2,000- and a 2,500-calorie diet and the number of calories per gram of fat, carbohydrate and protein. The calorie conversion information is required as a general guide about the caloric contributions of fat, carbohydrate and protein.

The content of micronutrients—that is, vitamins and minerals—will continue to be expressed as a percent, although the term "Daily Value" will replace "U.S. Recommended Daily Allowance."

Modifications

Some foods will carry a variation of this format. For example, the label of foods for children under 2 (except infant formula, which is exempt from nutrition labeling under NLEA) will not carry information about calories from fat, calories from saturated fat, saturated fat, polyunsaturated fat, monounsaturated fat, and cholesterol.

The reason, according to Wilkening, is to prevent parents from inadvertently assuming that infants and toddlers should restrict their fat intake, when in fact, they

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should not. Fat is important during this life stage, she said, to ensure adequate growth and development.

The labels of food for children under 4 cannot include percentages of Daily Values for macronutrients, except protein, nor any footnote information, including the lists of Daily Values for selected nutrients. The reason: Other than protein, FDA has not established Daily Values for macronutrients for this age group. The percent Daily Values for vitamins and minerals is allowed, however. The content of the other nutrients must be expressed as an amount by weight in a separate column to the right of the macronutrients.

Other foods may qualify for a simplified label format. (See bottom label, page 36.) This format is allowed when the food contains insignificant amounts of seven or more of the mandatory dietary components, including total calories. "Insignificant" means that a declaration of "zero" could be made in nutrition labeling or, for total carbohydrate, dietary fiber, and protein, a declaration of "less than 1 g."

For foods for children under 2, the simplified format may be used if the product contains insignificant amounts of six or more of the following: calories, total fat, sodium, total carbohydrate, dietary fiber, sugars, protein, vitamins A and C, calcium, and iron.

When the simplified format is used, information on total calories, total fat, total carbohydrate, protein, and sodium—even if they are present in insignificant amounts—must be listed. Calories from fat and other nutrients must be listed if they are present in more than insignificant amounts. Nutrients added to the food must be listed, too.

Serving Sizes

Whatever the format, the serving size remains the basis for reporting each nutrient's amount. However, unlike in the past, serving sizes now will be more uniform and closer to the amounts that many people actually eat. They also must be expressed in both common household and metric measures. (See accompanying table.)

> ***Consumers will see a new name for the nutrition panel. It used to go by "Nutrition Information Per Serving." Now it will be called "Nutrition Facts."***

Before, the serving size was up to the discretion of the food manufacturer. As a result, said Youngmee Park, Ph.D., a nutritionist in FDA's Office of Special Nutritionals, serving sizes often varied widely, making it difficult for consumers to compare nutritional qualities of similar products or to determine the nutrient content of the amount of food they normally ate.

The uniformity also is important, she said, for giving consistency to health claims and words describing nutrient content, such as "high fiber" and "reduced fat."

FDA and FSIS define serving size as the amount of food customarily eaten at one time. It is based on FDA- and USDA-established lists of "Reference Amounts Customarily Consumed Per Eating Occasion."

These reference amounts, which are part of the new regulations, are broken down into 139 FDA-regulated food product categories, including 11 groups of foods for children under 4, and 23 USDA meat and poultry product categories. They list the amounts of food customarily consumed per eating occasion for each food category, based primarily on national food consumption surveys. FDA's list also gives the suggested label statement for serving size declaration.

For example, the category "breads (excluding sweet quick type), rolls" has a reference amount of 50 g, and the appropriate label statement for sliced bread is "__ piece(s) __ (g)" or, for unsliced bread, "2 oz (56 g/__ inch slice)."

The serving size of products that come in discrete units, such as cookies, candy bars, and sliced products, is the number of whole units that most closely approximates the reference amount. For example, cookies have a reference amount of 30 g. The household measure closest to that amount is the number of cookies that comes closest to weighing 30 g. Thus, the serving size on the label of a cookie package in which each cookie weighs 13 g would read "2 cookies (26 g)."

If one unit weighs more than 50 percent but less than 200 percent of the reference amount, the serving size is one unit. For example, the reference amount for bread is 50 g; therefore, the label of a loaf of bread in which each slice weighs more than 25 g would state that a serving size is one slice.

For food products packaged and sold individually, if an individual package is less than 200 percent of the applicable reference amount, the item qualifies as one serving. Thus, a 360-milliliter (mL) (12 fluid-ounce) can of soda is one serving because the reference amount for carbonated beverages is 240 mL (8 fluid ounces).

However, if the product has a reference amount of 100 g or 100 mL or more and the package contains more than 150 percent but less than 200 percent of the reference amount, manufacturers have the option of deciding whether the product is one or two servings.

For example, the serving size reference amount for soup is 245 g. So a 15-ounce (420 g) can can be listed as either one or two servings.

Presentation

There also are rules governing how the nutrition information is displayed. Under existing FDA regulations, nutrition information must appear on the information panel to the immediate right of the principal panel. Thus, on boxed foods, for example, in which the principal panel is on the front of the box, the nutrition information appears on the right side of the box. Packages whose area to the immediate right is too small or not suited for such labeling may provide information on the next panel to the right.

FSIS allows nutrition information to be listed on the principal or information panels.

The new food labeling rules call for one additional variation: For packages that are 40 square inches or less, the nutrition information may be placed on any label panel.

The rules also address size and prominence of the typeface. For example, the heading "Nutrition Facts" must be set in the largest type on the nutrition panel and be highlighted in some manner, such as boldface, all capital letters, or another graphic to distinguish it from the other information. Such highlighting also is required for headings such as "Amount per serving" and "%Daily Value" and for the names of dietary components that are not subcomponents—that is, calories, total fat, cholesterol, sodium, total carbohydrate, and protein.

Exceptions and Exemptions

In some instances, special provisions exist for providing nutrition information. For example:

- Nutrition information about game meat, such as deer, bison, rabbit, quail, wild turkey, and ostrich, may be provided on counter cards, signs, or other point-of-purchase materials. Because little nutrient data exists for these foods, FDA believes that allowing this option will enable game meat producers to give first priority to collecting appropriate data and make it easier for them to update the information as it becomes available.

Metric Conversion Chart

Units as they will appear for serving sizes on label

Household Measure	**Metric Measure**
1 tsp	5 mL
1 tbsp	15 mL
1 cup	240 mL
1 fl oz	30 mL
1 oz	28 g

tsp = teaspoon
tbsp = tablespoon
fl oz = fluid ounce
oz = ounce
mL = milliliter
g = gram

- FDA-regulated food packages with less than 12 square inches available for nutrition labeling do not have to carry nutrition information. However, they must provide an address or telephone number for consumers to obtain the required nutrition information.
- Packages with less than 40 square inches for nutrition labeling may present nutrition information in a tabular format (see top label, page 36), abbreviate the names of dietary components, and omit the footnotes with the list of daily values and caloric conversion information but include a footnote stating that the percent Daily Values are based on a 2,000-calorie diet or place nutrition information on other panels.

Some foods are exempt from nutrition labeling. These include:

- food produced by small businesses. (As mandated by NLEA, FDA defines a small business as one with food sales of less than $50,000 a year or total sales of less than $500,000. FSIS defines a small business as one employing 500 or fewer employees and producing no more than a certain amount of product per year.)
- food served for immediate consumption, such as that served in restaurants and hospital cafeterias, on airplanes, and by food service vendors (such as mall cookie counters, sidewalk vendors, and vending machines)
- ready-to-eat foods that are not for immediate consumption, as long as the food is primarily prepared on site—for example, many bakery, deli, and candy store items
- food shipped in bulk, as long as it is not for sale in that form to consumers
- medical foods
- plain coffee and tea, flavor extracts, food colors, some spices, and other foods that contain no significant amounts of any nutrients
- donated foods
- products intended for export
- individually wrapped FSIS-regulated products weighing less than half an ounce and making no nutrient content claims.

Although these foods are exempt, they are free to carry nutrition information, when appropriate—as long as it complies with the new regulations.

But, there will be plenty of other foods carrying the new nutrition information. Dietitian Susan Thom sees that as a plus.

"We'll all know exactly what we're putting in our mouths," she said. "So there'll be little room for excuses." ■

Paula Kurtzweil is a member of FDA's public affairs staff.

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NUTRITION AND COGNITIVE DEVELOPMENT IN CHILDREN

WORDS YOU SHOULD KNOW	
cognitive	mental activity such as thinking, remembering, and learning
fatigued	tired
susceptible	easily affected with; vulnerable to

- Research provides evidence that undernutrition during any period of childhood can negatively affect the cognitive development of children. Poor nutrition can also affect their productivity when these children become adults.

- Undernutrition affects the behavior, school performance, ability to concentrate and perform complex tasks, and overall cognitive development of children.

- Undernutrition can begin before a child is born. Pregnant women who are undernourished are more likely to have low birthweight babies. These babies are more likely to suffer developmental delays.

- Undernourished children are more susceptible to illness. They are also more likely to be absent from school. In addition, they are typically fatigued and uninterested in their social environment.

- Undernutrition can permanently delay physical growth, brain development, and cognitive functioning.

- Improved nutrition and environmental conditions can modify the effects of early undernutrition.

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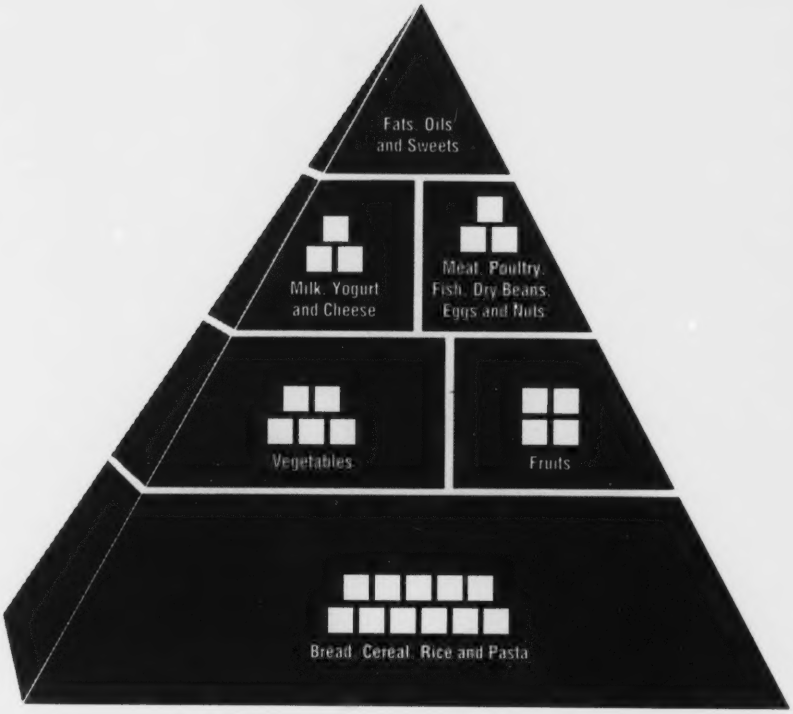
SERVINGS PYRAMID


Fats, Oils and Sweets
Milk, Yogurt and Cheese
Meat, Poultry, Fish, Dry Beans, Eggs and Nuts
Vegetables
Fruits
Bread, Cereal, Rice and Pasta

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LAP SHEET

DEVELOPING CONSUMER SKILLS

8

Name ____________________

Check the blank as you complete each step.

1. **Take** ____ the pretest provided by your instructor. Have your instructor evaluate your completed test. After your test has been evaluated, follow your instructor's recommendations.

2. **Read** ____ the introduction, unit objective, and specific objectives.

3. **Do** ____ the focus assignments.

4. **Stop** ____ and have your instructor evaluate your work from the focus assignment. After your work has been evaluated, follow your instructor's recommendations.

5. **Study** ____ the Information Sheet, objective 1.

Optional: Read ____ the information provided in *An Introduction to the New Food Label*. Ask your instructor if a copy is available.

6. **Do** ____ Assignment Sheet 1.

7. **Stop** ____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

8. **Study** ____ the Information Sheet, objective 3.

Optional: Visit ____ a grocery store and ask the manager to point out foods that promote a healthy lifestyle and those that are the most economical choices. Make an appointment before you visit.

9. **Study** ____ the Information Sheet, objective 4.

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Optional: Evaluate _____ the quality of a variety of food items.

10. **Do** _____ Assignment Sheet 2.

11. **Stop** _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

12. **Do** _____ Assignment Sheet 3.

13. **Stop** _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

14. **Do** _____ Assignment Sheet 4.

15. **Stop** _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

Optional: Read _____ the information provided in *How to Read the New Food Label.* Ask your instructor if a copy is available.

16. **Study** _____ the Information Sheet, objective 8. Watch the videotape *Grocery Shopping Survival.* As you watch the video, write down the guidelines that are given in the video. These guidelines apply to "before shopping" and "at the store." Write the guidelines in the spaces provided under objective 8 in your *Student Workbook.* When you are finished, ask your instructor to review your work.

17. **Study** _____ the Information Sheet, objective 9.

Optional: Make _____ and prepare a master mix.

18. **Do** _____ Assignment Sheet 5.

19. **Stop** _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

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20. Study _____ the Information Sheet, objective 11. Watch the videotape *Nutrition in the Fast Lane*. As you watch the video, write down any ten (10) guidelines that are given in the video. Write the guidelines in the spaces provided under objective 12 in your *Student Workbook*. When you are finished, ask your instructor to review your work.

Optional: Read _____ the information provided in *Eating Better When Eating Out Using the Dietary Guidelines*. Ask your instructor if a copy is available.

21. Do _____ Assignment Sheet 6.

22. Stop _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

23. Study _____ the Information Sheet, objective 13.

24. Do _____ Assignment Sheet 7.

25. Stop _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

26. Take _____ the posttest provided by your instructor. Have your instructor evaluate your completed test. After your test has been evaluated, follow your instructor's recommendations.

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WRITTEN TEST

DEVELOPING CONSUMER SKILLS

8

Name ______________________ Date ________ Score ___

OBJECTIVE 1

Classify information provided to consumers. Write the correct answers in the blanks.

A. Open dating B. Unit pricing C. Nutrition facts

_____ 1. Information provided on the food label that is up-to-date with today's health concerns; a label that is easy to understand and use in planning healthy meals and snacks

_____ 2. The cost of a product by weight or size; can be used for the comparison of brands and sizes; can be determined by dividing the item's price by the number of standard units in the package or container

_____ 3. Date stamped on a food container to help consumers obtain foods which are fresh and wholesome; appears as either an expiration date which indicates the last day a product should be used, a freshness date which indicates the end of a product's quality peak, a pack date which tells when the food was processed, or a pull date which gives the last day the product should be sold

OBJECTIVE 2

Evaluated on Assignment Sheet 1.

OBJECTIVE 3

List factors to consider in comparing food products.

____

____

____

____

____

____

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OBJECTIVE 4

Identify sensory characteristics used to evaluate food quality.
Write an "X" in the blank beside each characteristic.

_____ 1. Appearance

_____ 2. Brand

_____ 3. Aroma

_____ 4. Feel

_____ 5. Quantity needed

_____ 6. Sound

_____ 7. Taste

_____ 8. Unit price

OBJECTIVE 5

Evaluated on Assignment Sheet 2.

OBJECTIVE 6

Evaluated on Assignment Sheet 3.

OBJECTIVE 7

Evaluated on Assignment Sheet 4.

OBJECTIVE 8

List guidelines for purchasing foods.

Before shopping:

____

____

____

____

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At the store:

OBJECTIVE 9

Identify cost-cutting strategies when purchasing and preparing foods. Identify six (6) strategies.

OBJECTIVE 10

Evaluated on Assignment Sheet 5.

OBJECTIVE 11

State strategies for making healthy choices while dining out. State ten (10) of the strategies.

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____

____

____

____

OBJECTIVE 12 **Evaluated on Assignment Sheet 6.**

OBJECTIVE 13 **Match consumer protection and information agencies to their descriptions.** Write the correct answer in each blank.

A. Consumer Product Safety Commission
B. Federal Trade Commission
C. Food and Drug Administration
D. United States Department of Agriculture

____ 1. Responsible for food-protection by checking the accuracy of food labels, making sure manufacturers include the required information, testing products to make certain they meet government standards, and issuing public warnings when hazardous products are found

____ 2. Responsible for truth in advertising and checking false advertising claims

____ 3. Inspects meat and poultry and sets grades to determine the quality based on taste, texture, and appearance to assure that the product is wholesome and safe for consumption

____ 4. Responsible for protecting the public from unsafe products

OBJECTIVE 14 **Evaluated on Assignment Sheet 7.**

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MILESTONES IN U.S. FOOD LABELING

☑ **NOTE:** The following information originally appeared in the *FDA Consumer* Special Report *Focus on Food Labeling*, May 1993.

1906

The Federal Food and Drugs Act and the Federal Meat Inspection Act authorize the federal government to regulate the safety and quality of food. The responsibility falls to the U.S. Department of Agriculture and its Bureau of Chemistry, FDA's predecessor.

1913

The Gould Amendment requires food packages to state the quantity of contents.

1924

In *U.S. v. 95 Barrels Alleged Apple Cider Vinegar*, the Supreme Court rules that the Food and Drugs Act condemns every statement, design or device which may mislead, misdirect or deceive, even if technically true.

1938

The Federal Food, Drug, and Cosmetic Act replaces the 1906 Food and Drugs Act. Among other things, it requires the label of every processed, packaged food to contain the name of the food, its net weight, and the name and address of the manufacturer or distributor. A list of ingredients also is required on certain products. The law also prohibits statements in food labeling that are false or misleading.

1950

The Oleomargarine Act requires prominent labeling of colored oleomargarine to distinguish it from butter.

1957

The Poultry Products Inspection Act authorizes USDA to regulate, among other things, the labeling of poultry products.

1966

The Fair Packaging and Labeling Act requires all consumer products in interstate commerce to contain accurate information and to facilitate value comparisons.

1969

The White House Conference on Food, Nutrition, and Health addresses deficiencies in the U.S. diet. It recommends that the federal government consider developing a system for identifying the nutritional qualities of food.

1973

FDA issues regulations requiring nutrition labeling on food containing one or more added nutrients or whose label or advertising includes claims about the food's nutritional properties or its usefulness in the daily diet. Nutrition labeling is voluntary for almost all other foods.

1975

Voluntary nutrition labeling, postponed from its originally planned 1974 date, goes into effect.

1984

FDA adds sodium to the list of required, and potassium to the list of optional, nutrients on the nutrition panel. Effective in 1985, the new regulation also defines terms, such as "low sodium," that may be used on labels to make sodium-content claims.

1988

Surgeon General C. Everett Koop releases *The Surgeon General's Report on Nutrition and Health*, the federal government's first formal recognition of the role of diet in certain chronic diseases.

1989

The National Research Council of the National Academy of Sciences issues *Diet and Health: Implications for Reducing Chronic Disease Risk*, which presents additional evidence of the growing acceptance of diet as a factor in the development of chronic diseases, such as coronary heart disease and cancer.

Under contract with FDA and USDA's Food Safety and Inspection Service (FSIS), the Food and Nutrition Board of the

National Academy of Sciences convenes a committee to consider how food labels could be improved to help consumers adopt or adhere to healthy diets. Its recommendations are presented in *Nutrition Labeling: Issues and Directions for the 1990s.*

FDA publishes an advance notice of proposed rule-making on food labeling and, with FSIS participating, holds a series of four public hearings around the country.

1990

FDA proposes extensive food labeling changes, which include mandatory nutrition labeling for most foods, standardized serving sizes, and uniform use of health claims.

The Nutrition Labeling and Education Act reaffirms the legal basis for FDA's labeling initiative and establishes an explicit timetable.

1991

FDA issues more than 20 proposals to implement NLEA. In addition, the agency issues a final rule that sets up a voluntary point-of-purchase nutrition information program for raw produce and fish. FSIS unveils its proposals for mandatory nutrition labeling of processed meat and poultry and voluntary point-of-purchase nutrition information for raw meat and poultry.

1992

FDA's voluntary point-of-purchase nutrition information program for fresh produce and raw fish goes into effect.

1993

FDA issues the final regulations implementing NLEA. Regulations covering health claims become effective May 8, 1993. Those pertaining to nutrition labeling and nutrient content claims are effective May 8, 1994.

FSIS issues regulations for nutrition labeling of meat and poultry, effective July 6, 1994.

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HANDOUT 2

Are You a Smart Shopper?

Put an "X" in the box that says what you do at home before you go shopping and things you do at the store while you are shopping.

Things I Do at Home:

	Hardly ever	Sometimes	Every time
1. Look to see what I have on hand.	☐	☐	☐
2. Plan meals and make a list.	☐	☐	☐
3. Plan to buy a variety of food from each of the food groups.	☐	☐	☐
4. Think about buying foods that are lower in fat, sugar, and sodium.	☐	☐	☐

Things I Do at the Store:

	Hardly ever	Sometimes	Every time
1. Read labels to see how much fat, sugar, and sodium are in foods.	☐	☐	☐
2. Buy canned fruits packed in water, juice, or light syrup.	☐	☐	☐
3. Buy fewer foods that are high in sugar such as soft drinks, sweet desserts, and fruit-flavored punch.	☐	☐	☐

If you put an X in the boxes that say "every time," then you are a smart shopper.

From *Making Healthy Food Choices* (Home and Garden Bulletin Number 250), prepared by Human Nutrition Information Service, United States Department of Agriculture.

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LAP
SHEET

PLANNING HOME-PREPARED MEALS

9

Name ____

Check the blank as you complete each step.

1. **Take** _____ the pretest provided by your instructor. Have your instructor evaluate your completed test. After your test has been evaluated, follow your instructor's recommendations.
2. **Read** _____ the introduction, unit objective, and specific objectives.
3. **Do** _____ the focus assignments.
4. **Stop** _____ and have your instructor evaluate your work from the focus assignment. After your work has been evaluated, follow your instructor's recommendations.
5. **Study** _____ the Information Sheet, objective 1.
6. **Do** _____ Assignment Sheet 1.
7. **Stop** _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.
8. **Study** _____ the Information Sheet, objectives 3 and 4.
9. **Do** _____ Assignment Sheet 2.
10. **Stop** _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.
11. **Do** _____ Assignment Sheet 3.
12. **Stop** _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.
13. **Do** _____ Assignment Sheet 4.

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14. **Stop** _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

15. **Study** _____ the Information Sheet, objective 8.

Optional:
Look _____ in magazines, cookbooks, and/or textbooks to locate a healthy recipe to share with the class.

16. **Ask** _____ your instructor to demonstrate the guidelines and procedures in the Job Sheet. Use the Job Sheet to follow along. Pay careful attention to any guidelines, cautions, and warnings.

17. **Practice** _____ the procedures demonstrated by your instructor. Use the Job Sheet as a guide.

18. **Stop** _____ and have your instructor evaluate your work from the Job Sheet. After your work has been evaluated, follow your instructor's recommendations.

19. **Take** _____ the posttest provided by your instructor. Have your instructor evaluate your completed test. After your test has been evaluated, follow your instructor's recommendations.

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WRITTEN TEST

PLANNING HOME-PREPARED MEALS

9

Name ______________________ Date ________ Score ___

OBJECTIVE 1

Discuss factors influencing the choice of convenience or home-prepared foods. Write the correct answers in the blanks.

- Availability of food ______________________________
- Cost of food ______________________________
- Equipment needed for preparation ______________________________
- Nutritional value of food ______________________________
- Quantity of food ______________________________
- Skills for food preparation ______________________________

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404

- Time needed for preparation ______________________

____

____

OBJECTIVE 2 **Evaluated on Assignment Sheet 1.**

OBJECTIVE 3 **List criteria to consider when planning a menu.**

____

____

____

____

OBJECTIVE 4 **Describe ways to achieve variety in meals.** Write the correct answers in the blanks.

1. Color – ______________________

____

____

____

2. Food choices – ______________________

____

____

____

3. Flavor – ______________________

____

____

____

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4. Preparation – ______________________________

____

____

____

5. Size and shape – ______________________________

____

____

____

6. Temperature of each item – ______________________________

____

____

____

7. Texture of each item served – ______________________________

____

____

____

OBJECTIVE 5 **Evaluated on Assignment Sheet 2.**

OBJECTIVE 6 **Evaluated on Assignment Sheet 3.**

OBJECTIVE 7 **Evaluated on Assignment Sheet 4.**

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OBJECTIVE 8

State strategies for making healthy choices while preparing foods. State 12 strategies in the blanks provided.

- ______________________________
- ______________________________
- ______________________________
- ______________________________
- ______________________________
- ______________________________
- ______________________________
- ______________________________
- ______________________________
- ______________________________
- ______________________________
- ______________________________

OBJECTIVE 9

Evaluated on the Job Sheet.

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LAP
SHEET

SERVING AND DINING ETIQUETTE

10

Name ______________________________

Check the blank as you complete each step.

1. **Take** _____ the pretest provided by your instructor. Have your instructor evaluate your completed test. After your test has been evaluated, follow your instructor's recommendations.
2. **Read** _____ the introduction, unit objective, and specific objectives.
3. **Do** _____ the focus assignments.
4. **Stop** _____ and have your instructor evaluate your work from the focus assignment. After your work has been evaluated, follow your instructor's recommendations.
5. **Study** _____ the Information Sheet, objectives 1 and 2.
6. **Ask** _____ your instructor to demonstrate the guidelines and procedures in Job Sheet 1. Use the Job Sheet to follow along. Pay careful attention to any guidelines, cautions, and warnings.
7. **Practice** _____ the procedures demonstrated by your instructor. Use the Job Sheet as a guide.
8. **Stop** _____ and have your instructor evaluate your work from the Job Sheet. After your work has been evaluated, follow your instructor's recommendations.
9. **Study** _____ Handout 2. Obtain a copy from your instructor.
10. **Ask** _____ your instructor to demonstrate the guidelines and procedures in Job Sheet 2. Use the Job Sheet to follow along. Pay careful attention to any guidelines, cautions, and warnings.
11. **Practice** _____ the procedures demonstrated by your instructor. Use the Job Sheet as a guide.

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12. **Stop** _____ and have your instructor evaluate your work from the Job Sheet. After your work has been evaluated, follow your instructor's recommendations.

13. **Study** _____ the Information Sheet, objectives 5 and 6.

14. **View** _____ the videotape *Fundamental Table Etiquette.*

15. **Study** _____ the Information Sheet, objectives 7 and 8.

16. **View** _____ the videotape *Fundamental Restaurant Etiquette.*

17. **Complete** _____ objective information after watching the videotape.

18. **Do** _____ the Assignment Sheet.

19. **Stop** _____ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

20. **Take** _____ the posttest provided by your instructor. Have your instructor evaluate your completed test. After your test has been evaluated, follow your instructor's recommendations.

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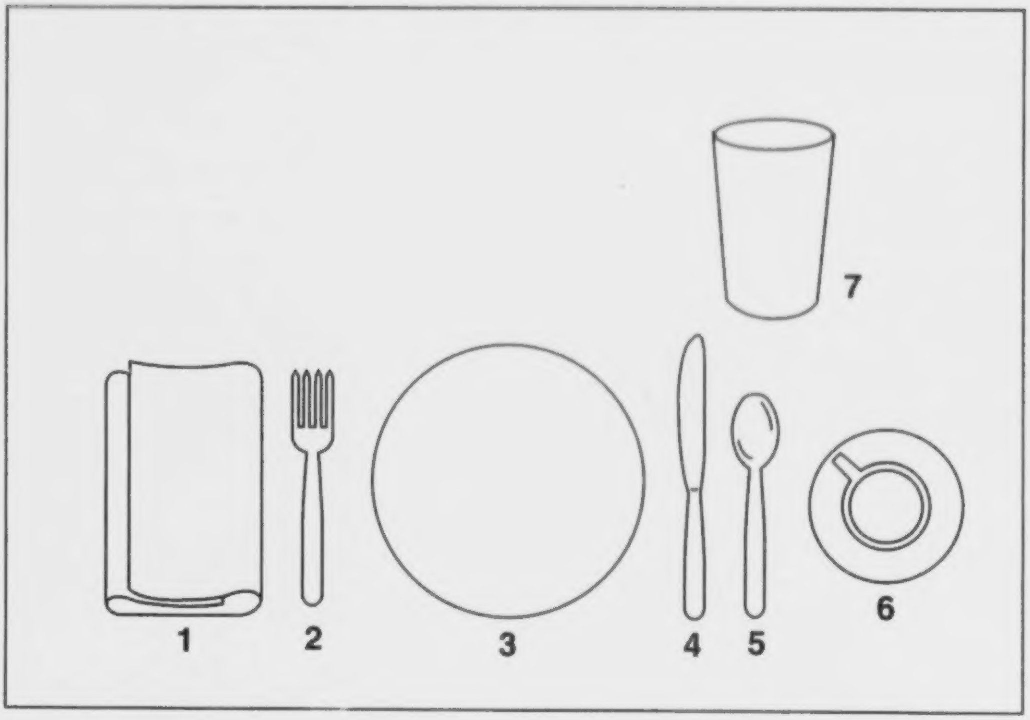
Informal Table Setting



1. Napkin
2. Fork
3. Plate
4. Knife
5. Spoon
6. Cup and Saucer
7. Glass

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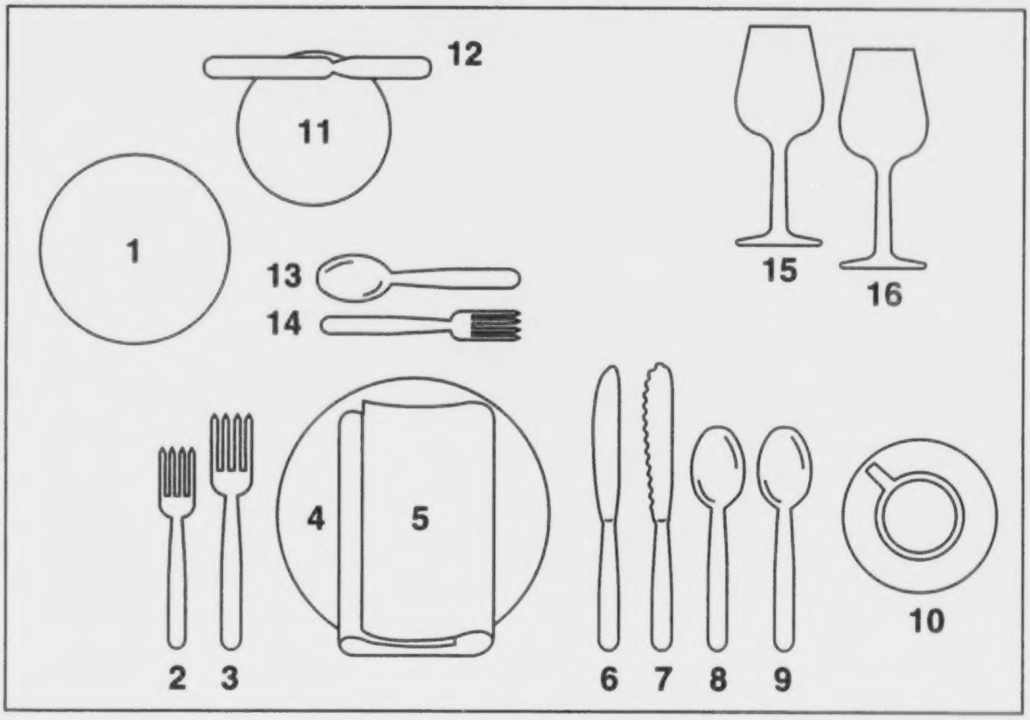
Formal Table Setting



1. Salad Plate
2. Salad Fork
3. Dinner Fork
4. Dinner Plate
5. Dinner Napkin
6. Dinner Knife
7. Meat Knife
8. Teaspoon
9. Soup Spoon
10. Cup and Saucer
11. Butter Plate
12. Butter Knife
13. Dessert Spoon
14. Dessert Fork
15. Water Glass
16. Beverage Glass

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WRITTEN TEST

SERVING AND DINING ETIQUETTE

10

Name ______________________ Date ________ Score ___

OBJECTIVE 1

Distinguish among styles of meal service. Write the correct answers in the blanks.

A. Buffet	D. Modified English
B. Family	E. Plate
C. Formal	

_____ 1. The most elaborate style of service, where there are generally a number of courses served by a table attendant; food is served to seated diners on individual plates

_____ 2. Food is portioned out on individual plates in the kitchen and brought to the table; style commonly used in restaurants

_____ 3. Food for the main course is brought to the table in serving dishes and placed beside a stack of dinner plates that are in front of the host or hostess; the host or hostess places a main course serving on each plate and passes it to the guests

_____ 4. Convenient method for serving large groups of people, where food and tableware are placed on a serving table and the diners pass by the serving table and serve themselves before sitting down

_____ 5. Informal and simple style of service where food is placed on the table in large serving dishes and the diners pass the serving dishes to each other after serving themselves

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OBJECTIVE 2 **Identify types and techniques of table settings.** Put an "X" in the blank before each correct answer.

_____ 1. Set all pieces of flatware at each meal for formal and informal settings.

_____ 2. A cover refers to the arrangement of dinnerware, flatware, napkin and glassware at each setting.

_____ 3. Place flatware about 3 inches from the edge of the table.

_____ 4. Always place the fork on the right of the place setting.

_____ 5. Place napkin to left of cover except at some formal settings.

_____ 6. Place bread and butter plate at tip of the fork.

_____ 7. Place cup and saucer at tip of the knife.

OBJECTIVE 3 **Evaluated on Job Sheet 1.**

OBJECTIVE 4 **Evaluated on Job Sheet 2.**

OBJECTIVE 5 **Discuss the relationship of dining etiquette to success in the workplace.** Write your answer in the blanks provided.

____

____

____

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OBJECTIVE 6

Select from a list guidelines for good table manners. Write an "X" in the blank before each correct answer.

_____ 1. Be on time for meals.

_____ 2. Begin eating using the innermost pieces of flatware first.

_____ 3. Begin eating as soon as you are served.

_____ 4. Season foods before you sample them if you are quite certain they will need it.

_____ 5. Place used flatware across the edge of the plate, not on the table or table cloth.

_____ 6. Contribute to table conversation, avoiding controversial or disagreeable subjects, and never talking when there is food in your mouth.

_____ 7. Take spoons out of glasses or cups before drinking from them.

_____ 8. Leave the dishes as they are on the table; neither push plates back nor stack the dishes at the table.

_____ 9. Contribute to table conversation by giving personal opinions of current debatable issues.

_____ 10. Let women be seated first.

_____ 11. Place dinner napkin in the lap after the host or hostess does so.

_____ 12. Place napkins on the table to the left of the plate when the meal is finished; neither refold the napkin nor wad it up, but neatly place it.

_____ 13. When in doubt about how to eat a particular food, do not eat it.

_____ 14. Place used flatware on the table to the left of the plate.

_____ 15. Place dinner napkins on the table to the left of the plate when the meal is finished; try to refold it as neatly as possible.

_____ 16. Use the outermost tine on your fork to remove lodged items from teeth.

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_____ 17. Put down silverware and wipe mouth before taking a drink or talking.

_____ 18. Begin eating using the outside pieces of flatware first.

_____ 19. Sample foods before adding any extra seasonings.

_____ 20. Being "fashionably late" for meals is acceptable.

_____ 21. Sit with arms resting in the lap, not leaning or resting elbows on the table.

_____ 22. Wait until everyone has been served to begin eating.

_____ 23. Watch the host or hostess and follow his or her lead when in doubt about how to eat a particular food or which piece of flatware to use.

_____ 24. Pass foods to the right.

_____ 25. Pass foods to the left.

_____ 26. When eating at a school cafeteria or fast food restaurant, clear your table area and throw away disposable items.

OBJECTIVE 7

Identify proper dining etiquette when using formal table settings. Write an "X" in the blank before each correct answer.

_____ 1. Start using the flatware that is nearest the plate and work out from the plate.

_____ 2. Butter your bread only one time, so all bites will be buttered and ready to be eaten.

_____ 3. Dip soup spoons away from the body; rest the soup spoon in the plate under the bowl when not in use or when finished.

_____ 4. Break your bread into moderate sized pieces to be eaten; place a pat of butter on the bread plate and butter one or two bites of bread at a time.

_____ 5. Dip soup spoons toward the body; rest the soup spoon in the plate under the bowl when not in use or when finished.

May be photocopied for student use.

____ 6. Use a toothpick and say "excuse me" when removing food items lodged between teeth.

____ 7. Place used flatware on the saucer or plate diagonally from the upper left to the lower right, with the handles slightly extended over the edge when finished with each course.

____ 8. Ask the host or hostess to remove the coffee cup if coffee is not desired.

____ 9. Excuse oneself from the table to remove food items lodged between teeth; toothpicks are never appropriate at the table.

____ 10. Start using the flatware that is farthest from the plate and work in toward the plate.

____ 11. Turn the coffee cup upside down if coffee is not desired.

OBJECTIVE 8

Complete a list of guidelines for proper restaurant etiquette. Write the correct answers in the blanks provided.

- **Arriving at the Restaurant**

1. If you arrive at the restaurant first, ____________________.
2. The ______________ of your group should communicate with restaurant staff.
3. If your group does not have a ______________, select a ______________.
4. When walking to the table, _____ go first, _____ follow.
5. If you are not satisfied with where you have been seated, ____________________________________.
6. __________________ can be draped over chair backs.
7. _________ are placed on laps immediately.
8. ______________ seat themselves.

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- **Ordering the Meal**

1. Be considerate of your host's ________.
2. Two separate meals can be split in half for sharing - request this ____________.
3. Your ________ can answer questions about the menu.
4. Knowledge of a restaurant's food can ________________ __________.
5. You may request ________ checks when ordering.
6. For business dinners, the ________________ pays.

- **During the Meal**

1. When dining with a small group, wait ________________ ________ to begin eating.
2. Place empty paper wrappers ______________________.
3. Wipe your mouth before ________________.
4. Excuse yourself to fix ____________.
5. When leaving the table, place napkin unfolded ________ ____________.
6. Smoke only if the restaurant allows it and ___________ ___________.
7. Keep ____________________________ off the table.
8. When sampling someone elses food, use ______________ __________.

- **Following the Meal**

1. Leave an appropriate ____ based on the service received.

OBJECTIVE 9 **Evaluated on the Assignment Sheet.**

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BASICS OF TABLE SETTINGS

A few simple rules for table settings serve as a guide for most occasions. Common practices for table setting have developed because they make sense. Table ware is placed on the table to make the meal easy to serve and easy to eat. At any meal, the pieces used are dictated by the food to be served; therefore, check the menu and how each food is to be served before setting any table. Set only the pieces of flatware which will be used for the meal.

☑ **NOTE:** Cover refers to the arrangement of dinnerware, flatware, napkin, and glassware at each place setting.

FLATWARE

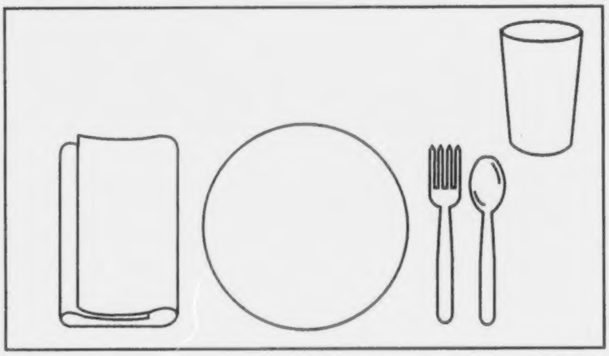
- Arrange knives, forks, and spoons in the order in which they are to be used from the outside toward the plate.

  ☑ **NOTE:** The pieces to be used first are at the outer edge of the place setting, and pieces to be used last are nearest the plate.

- Place flatware about one inch from the edge of the table.
- Place the knife with the cutting edge toward the plate at the right of the cover.

  ☑ **NOTE:** If no knife is required for the meal, the fork is placed to the right of the cover instead of the left. (Figure 1)

FIGURE 1



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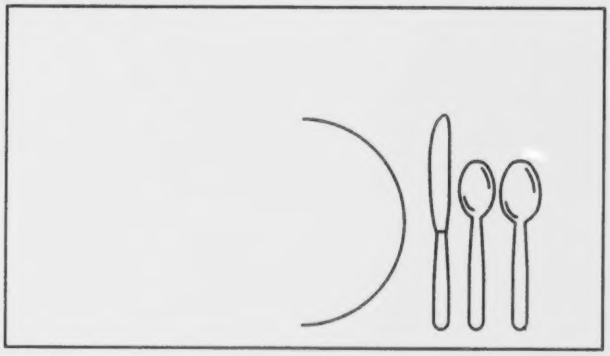
- Place spoons with the bowls up at the right of the knife. (Figure 2)

FIGURE 2

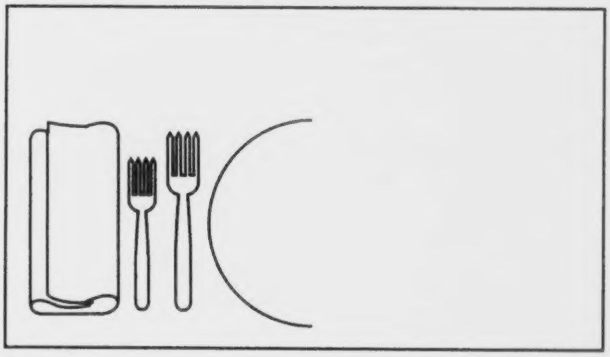


- Place forks with tines up at the left of the cover.

- Place the napkin to the left of the cover. (Figure 3)

☑ **NOTE:** In formal settings the napkin is sometimes placed in the center of the plate.

FIGURE 3



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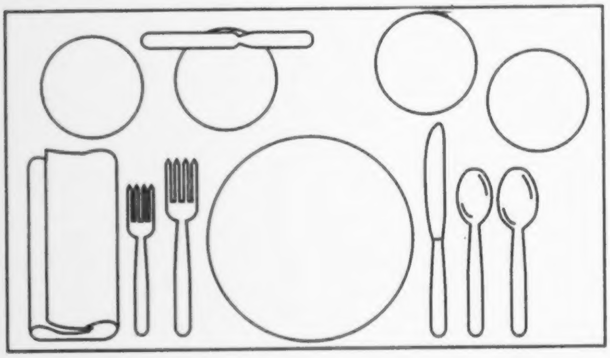
DINNERWARE

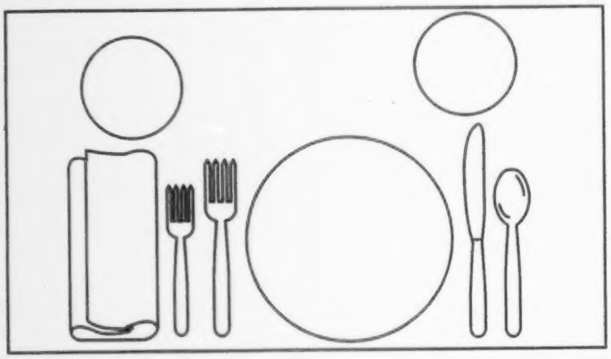
- Place the plate at the center of the cover one inch from the edge.
- Place bread and butter plate at the tip of the fork. (Figure 4)

FIGURE 4



- Place salad plates at the upper left of each cover. (Figure 5)

FIGURE 5



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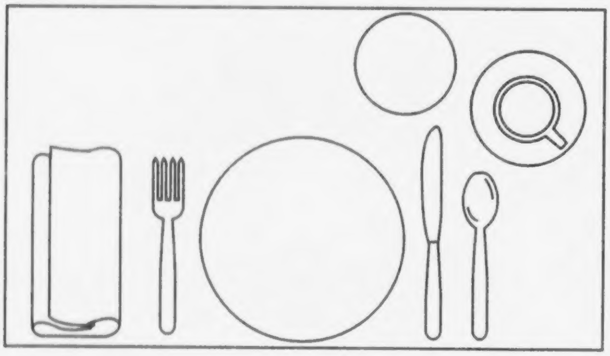
- Place the cup and saucer to the right of the cover. (Figure 6)

FIGURE 6



GLASSWARE

- Place the glass just above the knife when one glass is used.
- Place the second glass below and to the right of the first glass when two glasses are used.

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PROPER WAY TO CLEAR A TABLE

WORDS YOU SHOULD KNOW	
cover	the arrangement of dinnerware, flatware, napkin, and glassware at each place setting

- Carry only two soiled dishes away from the table at a time.
- Carry plates and dishes away to a tray.
- Clean each cover from the left side, using a folded napkin in your left hand to brush crumbs from the table onto a plate in your right hand.
- Clear the table going around it to the right.
- Fill and remove water and beverage glasses with your right hand from the right side of the guest.
- From the left of the guest and with your left hand, pick up the plate. Transfer the plate to your right hand, and then with your left hand pick up the salad plate or bowl.
- When the tray is full of soiled dishes, carry it to the kitchen.

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LAP SHEET

EXPLORING CAREERS

11

Check the blank as you complete each step.

1. **Take** ___ the pretest provided by your instructor. Have your instructor evaluate your completed test. After your test has been evaluated, follow your instructor's recommendations.

2. **Read** ___ the introduction, unit objective, and specific objectives.

3. **Do** ___ the focus assignments.

4. **Stop** ___ and have your instructor evaluate your work from the focus assignment. After your work has been evaluated, follow your instructor's recommendations.

5. **Study** ___ the Information Sheet, objective 1.

Optional: Identify ___ specific examples of careers relating to food science and nutrition.

Optional: Interview ___ a professional whose career involves food science or nutrition.

Optional: Find ___ newspaper or trade journal advertisements that relate to jobs involving the food industry. Think about the requirements and training needed for the jobs.

6. **Study** ___ the Information Sheet, objective 2. Think about why these qualifications are important. Write down any additional qualifications you would add to this list.

7. **Study** ___ the Information Sheet, objective 3.

Optional: Interview ___ a professional on what steps he or she took to achieve a career in his or her field.

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Optional: Write ___ a short paper on the interview.

8. Do ___ Assignment Sheet 1.

Optional: Think ___ about the economic impact of food-related businesses in your community.

9. Stop ___ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

10. Do ___ Assignment Sheet 2.

11. Stop ___ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

12. Do ___ Assignment Sheet 3.

13. Stop ___ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

14. Do ___ Assignment Sheet 4.

15. Stop ___ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

16. Do ___ Assignment Sheet 5.

Optional: Read ___ one or more of the following OSU publications *Skills for Employment: Assessing Job Skills, Skills for Employment: Writing a Resume, Skills for Employment: The Job Search, Skills for Employment: The Job Application, Skills for Employment: The Job Interview, Skills for Employment: Accepting and Starting the Job.*

Optional: Write ___ your resume.

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17. Stop ___ and have your instructor evaluate your work from the Assignment Sheet. After your work has been evaluated, follow your instructor's recommendations.

18. Take ___ the posttest provided by your instructor. Have your instructor evaluate your completed test. After your test has been evaluated, follow your instructor's recommendations.

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WRITTEN TEST

EXPLORING CAREERS

11

Name ______________________ Score __________

OBJECTIVE 1

Describe career opportunities related to food science and nutrition. Write your answers in the blanks.

1. Food service industry – ______________________

2. Food science and/or technology – ______________________

3. Family and consumer sciences – ______________________

OBJECTIVE 2

List personal qualifications needed for food science and nutrition-related careers. Write your answers in the blanks.

1. ______________________
2. ______________________
3. ______________________
4. ______________________
5. ______________________
6. ______________________
7. ______________________
8. ______________________

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9. ______________________________

10. ______________________________

11. ______________________________

12. ______________________________

13. ______________________________

14. ______________________________

OBJECTIVE 3 **List steps in making career decisions.** Write your answers in the blanks.

1. ______________________________

2. ______________________________

3. ______________________________

4. ______________________________

5. ______________________________

6. ______________________________

7. ______________________________

8. ______________________________

OBJECTIVE 4 **Evaluated on Assignment Sheet 1.**

OBJECTIVE 5 **Evaluated on Assignment Sheet 2.**

OBJECTIVE 6 **Evaluated on Assignment Sheet 3.**

OBJECTIVE 7 **Evaluated on Assignment Sheet 4.**

OBJECTIVE 8 **Evaluated on Assignment Sheet 5.**

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FOOD SCIENCE AND PERSONAL NUTRITION

CIMC

READING SKILLS

UNITS OF INSTRUCTION	Reading Comprehension									Research and Reference								Functional Reading						Language		Composition						
	Gain factual information	Distinguish fact, opinion and inference	Recognize stereotyping and bias	Recognize propaganda	Analyze cause and effect	Draw conclusions	Make generalizations	React to written material	Apply word analysis techniques	Select useful resources	Locate resources	Find materials in library	Use standard references	Use in-book reference tools	Use audiovisual media	Use computer data base	Use magazines and newspapers	Interpret forms and records	Follow written instructions	Interpret graphics and symbols	Use content area vocabulary	Interpret abbreviations/acronyms	Read aloud	Use standard grammar and correct spelling, punctuation, and capitalization	State ideas clearly	Use complete sentences	Develop preliminary outline	Use topic sentences	Use introductory/closing paragraphs	Compose reports	Compose essays	Proofread and edit
Valuing Food in Your World	●	●				●		●		●	●	●					●		●					●	●	●						
Examining Food, Nutrients, and the Body																			●						●	●						
Handling and Storing Food	●									●	●	●	●				●		●					●	●	●	●	●	●			
Using Recipes						●													●					●	●	●						
Applying Food Science Principles																			●					●	●	●						
Profiling Food Products	●					●		●			●													●	●							
Making Healthy Food Choices	●						●				●								●		●			●	●	●			●			
Developing Consumer Skills	●					●	●				●								●	●	●	●		●	●	●						
Planning Home-Prepared Meals	●					●	●				●								●	●	●	●		●	●	●						
Serving and Dining Etiquette	●					●				●	●										●			●	●	●	●					
Exploring Careers																			●					●	●	●			●			

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CIMC BASIC SKILLS DOCUMENTATION

WRITING SKILLS

MATH SKILLS

	Research					Functional Writing							Operation and Calculation														Math Application											Data Analysis and Display								
Construct graphics and symbols	Take notes	Use notecards	Create bibliography	Use footnotes	Outline material	Complete forms and records	Write instructions	Write letters	Write job applications	Write resumes	Use word processing	Use computer graphics	Round off numbers	Estimate answers	Use scientific notations	Use exponential notations	Calculate with whole numbers	Calculate with fractions	Calculate with decimals	Convert whole numbers to fractions	Convert whole numbers to decimals	Solve numerical expressions	Solve formulae and equations	Obtain squares and square roots	Convert units of measure	Perform metric calculations	Solve word problems	Select/apply mathematical formula	Select/apply mathematical procedure	Use English and metric measures	Solve time/rate/distance problems	Solve ratio/proportion problems	Solve percent problems	Apply techniques of scaling	Apply algebra principles	Apply geometry principles	Apply trigonometry principles	Interpret charts and tables	Interpret graphs (type)	Collect /record data	Apply sampling techniques	Apply principles of probability	Construct charts and tables	Construct graphs	Calculate statistics	Interpret statistics
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MATRIX

SCIENCE SKILLS

Functional Math															General Science									Life Science							Physical Science					Earth Science							
Interpret blueprints/plans	Make measurements	Perform banking transactions	Make change	Solve practical problems	Calculate gross earnings	Solve income/expense problems	Prepare a budget	Calculate interest	Solve interest problems	Calculate sales tax	Determine income tax	Use calculator for computation	Use computer for computation	Use computer spreadsheets	Apply computing skills	Apply scientific method of inquiry	Conduct experiments	Investigate science ethics	Investigate science history	Investigate/apply economics in technology	Use scientific instruments	Investigate/apply technology	Collect specimens	Identify/classify living organisms	Investigate biological history of the earth	Investigate food chains, webs, pyramids	Investigate/apply principles of human development	Investigate/apply principles of genetics/heredity	Investigate/apply principles of anatomy/physiology	Investigate health issues	Analyze/classify matter	Investigate forms/changes of matter	Investigate forms/changes of energy	Investigate/apply chemical properties	Investigate/apply physical laws	Investigate physical characteristics of the earth	Investigate geological history of the earth	Investigate physical forces acting on the earth	Solve problems of longitude, latitude, and time zones	Investigate conservation of physical resources	Investigate conservation of living resources	Investigate issues of environmental impact	Apply science principles to environmental issues
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CIMC

ORAL COMMUNICATION SKILLS

UNITS OF INSTRUCTION	Oral Presentation									Listening				Interactive Communication										General Relating										
	Make informative presentations	Make persuasive presentations	Present personal opinion/viewpoint	Use good speaking techniques	Select/use words effectively	Use effective body language	Present approriate appearance	Integrate audio and/or visual materials in oral presentations	Adapt presentation to specific audience	Apply active listening skills	Distinguish fact, opinion, and inference	Draw conclusions/make generalizations	Analyze/identify point of view	Give/follow oral directions	Apply questioning techniques	Conduct/receive interviews	Analyze/apply nonverbal communication	Work effectively in a group	Communicate with clients/customers/patients	Communicate with co-workers	Communicate with supervisors	Communicate with professional colleagues/associates	Apply telephone etiquette	Investigate/apply communication process models	Analyze/apply nonverbal communication	Investigate/apply cross-cultural communication	Interact with co-workers	Interact with supervisors	Interact with clients/customers/patients	Interact with professionalcolleagues/associates	Interact with family/friends	Participate in group activities	Participate in industrial relations/functions	Identify personal values/attitudes
Valuing Food in Your World	●			●						●		●				●		●																●
Examining Food, Nutrients, and the Body																																●		
Handling and Storing Food	●			●	●	●	●											●														●		
Using Recipes																																●		
Applying Food Science Principles																																		
Profiling Food Products																																		
Making Healthy Food Choices																																		
Developing Consumer Skills																		●	●															
Planning Home-Prepared Meals	●																																	
Serving and Dining Etiquette																																		
Exploring Careers																																		
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INTERPERSONAL OR RELATING SKILLS

CREATIVE THINKING/ PROBLEM SOLVING SKILLS

		Teamwork/ Cooperation															Leadership/ Influence							Cognitive Activities																				Job Se Selec		
Identify personal values/attitudes	Apply information to life experiences	Identify values/attitudes	Identify needs/drives	Select/apply appropriate behavior	Investigate/identify personal styles	Investigate/identify group/corporate climate	Give/receive feedback	Identify hidden purposes	Investigate/apply group dynamics	Control undesirable/inappropriate behavior	Resolve conflicts	Clarify goals/objectives	Devise "win/win" situations	Build consensus	Generate ideas	Present point of view	Analyze/apply leadership styles	Analyze/apply management styles	Obtain confidence of others	Develop esteem in self/others	Persuade others	Analyze/apply motivation techniques	Provide positive coaching	Collect/record information	Identify critical elements/issues	Define a problem	Identify underlying causes	Apply a problem-solving model	Analyze/synthesize information	Identify/analyze underlying assumptions	Draw conclusions	Predict results/outcomes	Identify/evaluate consequences	Identify/develop alternatives	Evaluate alternatives	Select an alternative	Devise a solution	Create a finished product	Apply intuitive/creative thinking processes	Transfer knowledge/training to new situations	Apply new technology	Develop an action plan	Evaluate results/outcomes	Analyze personal occupational aptitudes/preferences	Investigate employment prospects of a career field/occupation	Investigate training requirements for a career field/occupation
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EMPLOYABILITY SKILLS

SOCIAL STUDIES SKILLS

arch/ tion					Job Aquisition/ Development														Information Analysis						Social Studies Application										Functional Social Studies														
Investigate benefits of a career field/occupation	Compare/evaluate career options	Develop personal career path	Locate appropriate jobs	Analyze duties/requirements/benefits of specific job	Master specific job task/procedure	Fill in job-related applications	Write letter of application	Write personal resume	Interview for a job	Apply business etiquette	Practice good work habits/attitudes	Develop good personal presentation	Develop self-confidence/esteem	Develop effective leadership	Deal effectively with supervisors	Deal effectively with co-workers	Deal effectively with professional colleagues/associates	Deal effectively with customers/clients	Collect/record data	Interpret graphical information	Construct graphical information	Interpret maps/globes	Interpret statistical information	Analyze/interpret demographic information	Investigate/apply U.S. history	Investigate/apply world history	Investigate/apply U.S. geography	Investigate/apply world geography	Investigate/apply principles of government/politics	Investigate/apply principles of economics	Investigate/apply principles of ethics	Investigate/apply principles of psychology	Investigate/apply principles of sociology	Investigate/apply cross-cultural studies	Practice responsible personal economics	Prepare a personal budget	Use credit responsibly	Practice good work ethics	Participate in industrial relations	Interact with people of different races/cultures	Investigate/participate in government	Investigate/apply American legal practices	Select/use sources of information on current events	Analyze current events	Analyze consumer issues	Analyze social issues	Analyze conservation/ecology issues	Analyze social impact of science/technology	Analyze economic impact of science technology
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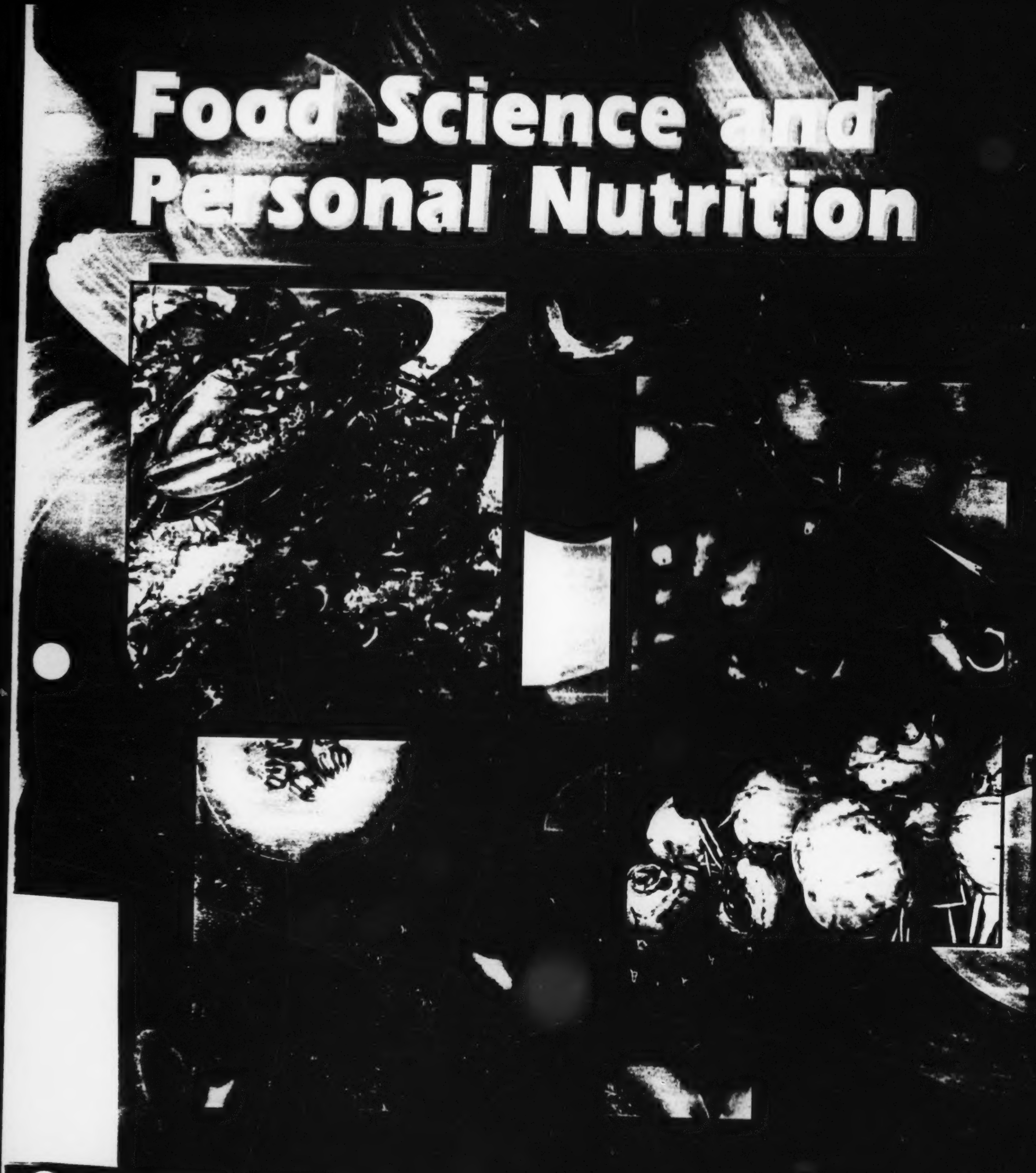
Food Science and Personal Nutrition



CIMC

Student Workbook

96-011642

Oklahoma Department of
Vocational and Technical Education
1500 West Seventh Avenue
Stillwater, OK 74074-4364

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Food Science and Personal Nutrition

Student Workbook

Developed by the
Curriculum and Instructional Materials Center
for the Family and Consumer Sciences Education Division
Oklahoma Department of Vocational and Technical Education

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Curriculum and Instructional Materials Center

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TABLE OF CONTENTS

One set per unit of Objective Sheets, Information Sheets, Assignment Sheets, and Job Sheets for the following units:

UNIT 1
Valuing Food in Your World 1-1

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OBJECTIVE SHEET

VALUING FOOD IN YOUR WORLD

1

INTRODUCTION

To put it quite simply we value food because it is needed to sustain life. To satisfy this need, the search for food and its production will continue as long as life exists. Although we began to value food because of our basic instinct for survival, food is now more than just something to eat. It has social, emotional, and psychological importance. Food is the basis for some of the most advanced scientific research in the world. It provides income to millions of people, and is also part of our cultural identity. Yet people are still starving in some parts of the U.S. and in other countries. We need only to see life without food to realize its true value.

FOCUS ASSIGNMENTS

Reading Comprehension
- Gain factual information
- Analyze cause and effect
- Draw conclusions

Language
- Use standard grammar, spelling, and capitalization
- State ideas clearly

Composition
- Use complete sentences

FOCUS ASSIGNMENTS	
PREREADING:	Read Handout 1, "I'm Hungry." Pay attention to how valuable food is to an individual and a nation and what circumstances may contribute to hunger in underdeveloped countries.
WRITING:	Write a short (one paragraph to one page) discussion about the value of food to an individual and a nation and the circumstances that may contribute to hunger in underdeveloped countries.

UNIT OBJECTIVE

After completing this unit, you will show the following competencies by mastering the activities on the Assignment Sheets and by scoring at least 85% on the Written Test.

SPECIFIC OBJECTIVES

1. Define food science.
2. Define nutrition.
3. Profile career opportunities in food science and nutrition. (Assignment Sheet 1)
4. Profile nutrition-related businesses in the community. (Assignment Sheet 2)
5. Distinguish between the primary and secondary needs met by food.
6. Explain factors that influence food choices.
7. Analyze nutrition-related advertising. (Assignment Sheet 3)
8. Profile personal food choices. (Assignment Sheet 4)
9. Identify the global origins of some foods and ingredients popular in the United States.
10. Trace the origin of ingredients in a food item. (Assignment Sheet 5)
11. Explain the role of environment and culture in the development of United States regional foods.
12. Identify regional and specialty foods in the United States.
13. Report on the food heritage of another country or U.S. region. (Assignment Sheet 6)
14. Explain factors affecting the global food supply.
15. Report on food supply factors and/or issues. (Assignment Sheet 7)

INFORMATION SHEET

VALUING FOOD IN YOUR WORLD

1

OBJECTIVE 1

Required Activities/
Resources
– Transparency Master 1

Optional Activities/
Resources in
Instructor's Guide

Define food science.

Discuss the question "What is food science?" Think about the discoveries made in food science.

WORDS YOU SHOULD KNOW	
catalyst	an agent for change or development
scientific method	a general procedure to solve a problem; Includes stating the problem, forming a hypothesis, observing and experimenting, interpreting data, and drawing conclusions.

- **Food science is an applied science, one that combines theory and practical application. It combines knowledge of physical, biological, and chemical science and engineering to develop new products, packaging, and methods of processing food.**

  Using scientific methods in laboratory experiments, food scientists research ways to improve flavor, appearance, and nutritional quality of the processed foods they create. Global issues such as overpopulation create the need to efficiently and economically feed people. Scientists search for new food sources as they explore ways to feed the world's growing population. Spaceflight has also been a catalyst for advances in space food technology.

OBJECTIVE 2

Required Activities/
Resources
– Assignment

Optional Activities/
Resources in
Instructor's Guide

Define nutrition.

Discuss the question "What is nutrition?"

WORDS YOU SHOULD KNOW	
nutrient	chemicals found in food that the body uses to function, grow, create energy, and repair itself

- Nutrition is a relatively young field of study which began around the early 1900s. The science of nutrition is based on chemistry, biochemistry, and physiology and plays an important role in understanding how nutrients work in the body. **Nutrition can be defined as the food you eat and the scientific understanding of how the body uses the nutrients in the food.**

- The body needs nutrients to survive and work properly. There are six kinds of nutrients which work together as a team. These include: proteins, fats, carbohydrates, vitamins, minerals, and water. Through research, scientists have discovered the proper amounts of some nutrients that should be consumed on a daily basis for good nutrition. Scientists are continuing to discover needed nutrients and the interdependence between them. Research is now underway to determine the role nutrients may have in the prevention of cancer and other diseases.

OBJECTIVE 3

Complete Assignment Sheet 1.

OBJECTIVE 4

Complete Assignment Sheet 2.

OBJECTIVE 5

Distinguish between the primary and secondary needs met by food.

Required Activities/
Resources
– Discussion
– Transparency Master 4

Optional Activities/
Resources in
Instructor's Guide

Start the discussion by asking the question "What are the needs met by food?"

Primary needs

- **Satisfy hunger** – Hunger is the physiological need to eat. At the most basic level we need food to survive. If we do not eat when we get hungry we may become irritable or weak. Chronic hunger is a cause of serious illness.

- **Provide energy** – Food continuously supplies and replenishes the energy our bodies burn in work and play.

- **Build and repair cells** – Food helps the body grow, heal, and renew itself. A healthy body is constantly replacing cells that are worn out or damaged.

- **Protect and regulate body processes** – Breathing, digesting food, and building red blood cells are examples of processes that continuously happen in the body. Without food these processes become less effective and eventually shut down.

☑ **NOTE:** Personal needs for food differ. Your food quantities, forms, and sources change over your life cycle.

Secondary needs

- **Social** — Food is fun to eat and plays an important part in social activities. Food is often the highlight of an event at many social activities in all parts of the world.
- **Creative expression** — Many people enjoy their leisure time creatively preparing and presenting meals. Many television shows, cook books, and magazines are devoted to the art of food preparation.
- **Identity** — Food is often an important link to a person's cultural heritage. Many people have a strong need to identify with their cultural background.
- **Psychological** — Appetite is the psychological desire to eat. Food satisfies your appetite. Your appetite is created by your food habits and your past experiences. If you are used to eating at a certain time each day or if you see a favorite food, this can make you think you are hungry even if you are not. Your appetite may continue after your hunger is satisfied.

OBJECTIVE 6

Required Activities/
Resources
– Transparency Master 5

Optional Activities/
Resources in
Instructor's Guide

Explain factors that influence food choices.

Start the discussion by asking "What influences your food choices?"

- **Advertising** — Advertisements have a strong influence on food choices. Magazines, television, and radio ads for foods appeal to our tastes, emotions, attitudes, and lifestyles. Ads also encourage you to try a new product or continue using one. A catchy phrase or slick-looking package can help to make food seem more desirable.
- **Availability** — Availability has a great impact on your choice of food. Seasonal foods, such as pumpkins, are available only at certain times of the year. Weather affects not only the availability but the abundance and price of food. Government policies and the economy also affect the supply and price of food.
- **Convenience** — In a society that is always on the go, convenience is a high priority. Convenience foods are quick and easy for people who are busy and have little time or desire to prepare food themselves.

- **Cultural and religious influences** – Shared language, customs, and values of a group have a strong influence on a person's preference and choice of food. Ethnic foods from different cultures vary considerably in ingredients, taste, texture, and presentation and may not appeal to people who are not familiar with it. Religious beliefs may restrict the consumption of certain foods. They also might direct which food should be eaten on special occasions.

- **Health** – A person's health may influence food choices. Special diets are often required for people with diabetes, heart disease, food allergies, and other medical problems. People who are trying to lose or gain weight may follow strict diets.

- **Personal preference** – Food choices are personal and not always sensible. You may like some types of food and dislike others. The tastes of sugar and salt are widely shared preferences of many people. People tend to like foods associated with happy occasions. You may attach an intense dislike to foods you ate when you were sick or were forced to eat.

- **Personal resources** – Personal resources such as finances and education can play a part in determining the food you eat. If you would *like* to order a steak dinner but can only *afford* a hamburger, your food choice is influenced and restricted by finances. The more you know about food, nutrition and health, the better able you are to make wise food choices. Knowledge of the nutritional value of food may help you avoid illness and improve your physical well-being.

- **Social influences** – Families play a large part in your eating habits and food choices. A health-conscious family may discourage junk food and promote nutritious snacks and meals instead. Peer pressure and the need to conform may influence what you eat. Friends may also encourage or discourage you.

- **Trends and technology** – Technological advances have greatly improved the availability of food. Processing, storing, and transportation make most foods available around the world. Trends in society affect consumer demand which influences what kind of foods manufacturers produce and market. For example, the fitness and wellness trend has increased the production and consumption of fat-free and low-fat foods. Trends in lifestyle, family structure, and living arrangements also influence food choices.

OBJECTIVE 7 **Complete Assignment Sheet 3.**

OBJECTIVE 8

Complete Assignment Sheet 4.

OBJECTIVE 9

Required Activities/
Resources
– Discussion
– Transparency Master 7

Optional Activities/
Resources in
Instructor's Guide

Identify the global origins of some foods and ingredients popular in the United States.

Start the discussion by asking the question "What are some of your favorite foods and ingredients that originated in another country?"

Fill in the spaces next to each country of origin with additional names of foods and ingredients that your instructor and class generate. Identify additional countries as needed.

- France – crepes, pastries, croissant

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- Germany – sausage, sauerkraut

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- Italy – oregano, garlic, spaghetti, olive oil, spumoni

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- China – ginger, egg rolls, fried rice

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- Mexico – red pepper, cilantro, taco, tortilla, salsa

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- Japan – sushi, tempura, tofu

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- India – curry, cumin

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- Greece – mousakka, baklava

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- Other – ______________________________

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OBJECTIVE 10

Complete Assignment Sheet 5.

OBJECTIVE 11

Required Activities/
Resources
– Transparency Master 8

Optional Activities/
Resources in
Instructor's Guide

Explain the role of environment and culture in the development of United States regional foods.

Environment

- Geography and climate – Differences in climate and type of land and soil created differences in types of food available to Native Americans and to settlers. In the Southwest, peppers and beans were abundant. The Northwest's staple food was from the ocean. In the Midwestern regions corn, wheat, and buffalo were considered staple foods. The people in the Northeast grew corn, pumpkins, fruits, and berries and had prosperous hunting grounds. Many of these foods are still associated with certain regions of the country. The climate also played a role in how foods were prepared and stored. To last the long, cold winters in the Northeast, foods were usually dried, smoked, or salted. Southern regions enjoyed foods prepared with small game, fish and corn. In the deep South, warm temperatures and rich soil provided abundant year-round crops, fish and game so storage was not a problem. Availability of fuel for cooking also influenced how food was prepared and cooked.

- Food quality – When the Pilgrims first settled in America, they ate the local foods that were the staple diet of the Native Americans. They learned new methods of growing and preparing these foods. Where foods were high quality and rich in flavor, the cooking methods were simple to bring out natural flavor (not mask it). When the food was not as high quality, recipes that were highly seasoned became popular. Each geographical region eventually developed foods that became popular in that area.

Culture

- Many of the foods eaten in the U.S. have Native American origins. These foods were combined with those of the people settling here from other countries. Groups immigrating to the U.S. brought their own cooking and eating *customs* with them. Immigrants also introduced new *types of foods* and *utensils* which played a role in food preparation.

- People of the same nationality tended to settle in areas that were similar in geography and climate to their homeland. These immigrants sought to retain their ethnic identities by continuing their native food customs. Lifestyles, religions and traditions helped to influence each area differently. As a result, food preparation may vary from region to region.

OBJECTIVE 12

Optional Activities/
Resources in
Instructor's Guide

Identify regional and specialty foods in the United States.

Fill in the blanks provided after each region with names of regional and specialty foods that your instructor and class generate.

- **Northeast** – Harsh environment, long, cold winters, rocky terrain in New England area. Rich and fertile farmlands with warmer climate, less rocky soil in the Mid-Atlantic. Since it is geographically located on the ocean, seafood is an important staple. The area was settled by Dutch, German, French and English farmers. Many reminders of the Pilgrims are still seen in the food in this area.

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- **South** – Temperate climate and rich soil. The ocean, fresh water and the forests are also important sources of food. The English, French, and Spanish settled here.

- **Midwest and the Plains** – Known as the heartland of America. This is a great food producing area with open land, rich soil, and ample water. The first settlers were from Eastern colonies and northern Europe.

- **Southwest and West** – These areas were settled by the Mexicans and Spanish. Some areas have a harsh, barren environment too dry for large scale crop production but suitable for cattle. Other areas are hot and sunny and produce fruits and vegetables year round.

- **Pacific coast** – Spanish, Chinese, and Japanese immigrants had a great influence in this region. The area has great natural resources. Warm climate in the northwest especially suited for berries, nut trees. Coastal area produces an abundance of fish and shellfish. The growing season is year round and the climate is especially suited for groves of oranges, lemons, grapes.

- **Alaska** – This region has mostly Native Alaskan or Eskimo influences. The area has long, cold winters and short growing seasons with limited food production. Short, but abundant fishing season.

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- **Hawaii** – Polynesian, Chinese and Japanese immigrants settled in this region. The tropical climate is ideal to grow food, especially vegetables and tropical fruits. Fishing is an important industry.

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OBJECTIVE 13

Complete Assignment Sheet 6.

OBJECTIVE 14

Explain factors affecting the global food supply.

Required Activities/
Resources
– Transparency Master 9

Optional Activities/
Resources in
Instructor's Guide

Discuss the question "What are factors that affect the global food supply?"

- **Agricultural technology** – Improved irrigation techniques have made previously unused land available for farming. New types of farming, such as aquaculture and hydroponics, and improved fertilizers and tools help increase the food yield. The science of biotechnology has created new strains of plants that are resistant to drought and diseases. Technologies to increase product yields in diverse environments where the poor and undernourished live are still being researched.

- **Diseases** – Significant quantities of the food supply are lost because of pests (such as rodents and insects), plant diseases and other biological adversities. Diseased animals, failed crops, and spoiled food can also have disastrous effects on a nation's supply of food.

- **Energy losses** – Every step in food production and processing requires energy in one form or another. Energy costs can have significant effects on a nation's ability to produce, process, distribute, and trade food. Higher energy costs usually result in higher food costs.

- **Food technology** – With an increased knowledge of nutrition and food processing, scientists have created new foods. In addition, the treatment of food before consumption helps to prevent perishables from spoiling and deteriorating. Advances in processing such as refrigeration, freezing, dehydration, drying, and food additives have also helped increase the world food supply.

- **Government policies** – Food policies established by governments affect the supply and price of food. This in turn affects what foods are available in a country or area. Food is one of the largest industries in most countries and has become a worldwide object of dispute. Federal food and agricultural policies affect almost every aspect of food production, consumption, and exchange. The government can regulate food prices through subsidizing farmers and supporting certain agricultural products. The ability of a nation to trade food depends on its foreign exchange situation, which may be limited by debts, terms of trade, import tariffs, and restricted export potential.

- **Natural and man-made disasters** – Natural and man-made disasters have a great impact on the world's food supply. Prolonged droughts, floods, locust invasion, and other natural disasters can cause crop failures leading to less food and much economic hardship. Man-made disasters such as civil unrest and war often interrupt or sever needed food supplies for an entire population, causing hunger and even starvation. Disasters may also lead to higher prices, since the supply of a food item may no longer satisfy the demand for it.

- **Seasons and weather** – Weather and the four seasons have long been a factor in food production and distribution. They affect the amount of food available and the price. If weather conditions are favorable, there may be an abundant supply and food prices will fall. If the conditions are poor, the yield is smaller and prices may rise. Historically, a short growing season meant less food to harvest. Although seasonal influences do not affect food supply nearly as much as it used to, it is still a significant factor. Foods are more plentiful and are usually less expensive when they are "in season."

- **Transportation** – Major global food supply problems are being solved with efficient and effective food storage and transportation methods. Time and temperature play a large role in food spoilage. With advances in transportation, refrigerated cars, and improved storage techniques these factors are becoming less of a problem in many areas. However, an interruption in the transportation of foods - such as during a strike - may cause a temporary shortage in the availability of a food item (and higher prices).

- Travel – People who travel can influence the foods that are available to them. Consumers may demand foods that are enjoyed while visiting other regions or countries. Immigrants may also introduce new foods.

OBJECTIVE 15 **Complete Assignment Sheet 7.**

ASSIGNMENT SHEET 1

VALUING FOOD IN YOUR WORLD

1

Name ________________________________ Score __________

OBJECTIVE 3

Profile career opportunities in food science and nutrition.

INTRODUCTION

Choosing a career is one of the most important decisions you will make. Finding a suitable career depends on thorough research and planning. There are a variety of career opportunities related to food science and nutrition. Being aware of what these jobs have to offer will help you decide which is best for you. It is important to identify and consider your own interests, capabilities and goals when choosing a career.

EQUIPMENT AND SUPPLIES

- Library resources
  EXAMPLE: *Occupational Outlook Handbook*, *Encyclopedia of Careers and Vocational Guidance*, Oklahoma *Career Search*, *Guide for Occupational Exploration*, etc.
- Paper and pen or pencil
- Other resources: government publications, trade and professional journals, magazines, newspapers, personal interviews

INSTRUCTIONS

- Select useful resources
- Locate resources
- Use magazines and newspapers
- Follow written instructions

- Use standard grammar, spelling, and capitalization
- State ideas clearly
- Use complete sentences
- Take notes

Part 1

- The list below contains the professions highlighted on the video *Careers in Nutrition*. From the list choose two careers that are of interest to you.

  ☐ Registered dietician
  ☐ University professor
  ☐ Child nutrition specialist
  ☐ Nutrition specialist
  ☐ Weight reduction specialist
  ☐ Nutrition support specialist

- Take notes as you view the video. Then, answer the following questions.

- Make informative presentations
- Use good speaking techniques
- Apply active listening skills
- Draw conclusions/make generalizations

- Collect/record information

- Analyze personal occupational aptitudes/preferences
- Investigate training requirements for a career field/occupation

1. What advantages and disadvantages do these careers offer?

2. What are the responsibilities associated with each career?

3. List two activities the professionals in the video stress as being important to do *while in school*.

4. List two reasons given in the video why careers in nutrition are important.

5. What about these careers interests you?

6. Would you pursue either of these careers? Why or why not?

Part 2

- Choose two careers to research. Select one career from the video list and one not covered on the video that you would like to learn more about.

- Answer the following questions using a variety of resources such as government publications, trade and professional journals, magazines, newspapers, and personal interviews.

- Report your findings to the class.

1. List two careers.

2. What educational requirements are needed for these careers? Where can you obtain this education in your state?

3. What salary ranges do the careers offer?

4. What are the working conditions?

ASSIGNMENT SHEET 2

VALUING FOOD IN YOUR WORLD

1

Name ______________________ Score __________

OBJECTIVE 4

Profile nutrition-related businesses in the community.

INTRODUCTION

Almost every community has a variety of food- and nutrition-related businesses. Commercial businesses may include restaurants, supermarkets, and specialty stores. Less obvious examples are hospitals and nursing homes which fall into the institutional category. Some businesses may offer both full-time and part-time employment.

EQUIPMENT AND SUPPLIES

- Paper and pen or pencil
- Literature on business in the community: telephone directory, chamber of commerce information, newspaper articles, company brochures

INSTRUCTIONS

- Gain factual information
- Select useful resources
- Locate resources
- Use magazines and newspapers
- Follow written instructions

- Use standard grammar, spelling, and capitalization
- State ideas clearly
- Use complete sentences

- Select two nutrition-related businesses from the community. The selections may include any business or agency that involves food or nutrition. They may be commercial or institutional in nature.

☑ **NOTE:** As you make your selections, notify your instructor so that the choices will not be duplicated.

- Write a one-page summary of each business, answering the questions listed below. You may use personal interviews, telephone interviews, pamphlets, brochures, or other sources.

1. What is the name of the business or agency? Where is it located (address)?

____

____

2. How does it relate to nutrition?

____

____

- Apply active listening skills
- Conduct/receive interviews
- Work effectively in a group

- Collect/record information

- Investigate employment prospects of a career field/occupation

3. What specific services or products are offered?

4. What is the approximate number of employees?

5. How does the business or agency advertise its products or services?

6. Why is this business important to the community? What are key points in the history of this business?

7. What local career opportunities does it offer?

8. Additional information?

ASSIGNMENT SHEET 3

VALUING FOOD IN YOUR WORLD

1

Name ______________________________ Score __________

OBJECTIVE 7

Analyze nutrition-related advertising.

INTRODUCTION

Advertisements have a strong influence on food choices. Magazines, television, and radio ads for foods appeal to our tastes, emotions, attitudes, and lifestyles. Ads also encourage you to try a new product or continue using one. A catchy phrase or attractive package can help to make food seem more desirable.

EQUIPMENT AND SUPPLIES

- Television
- Current magazines and newspapers
- Paper and pen or pencil

INSTRUCTIONS

- Distinguish fact, opinion and inference
- Draw conclusions
- React to written material
- Select useful resources
- Follow written instructions

- Use standard grammar, spelling, and capitalization
- Use complete sentences
- Complete forms and records

- Calculate with decimals
- Solve percent problems
- Collect/record data
- Use calculator for computation

Part 1

1. During a television program, complete the "Commercial Data Sheet" for each of the commercials shown during the program.

2. Of the total number of commercials, what percentage were related to foods, nutrition or health? Calculate the percentage of nutrition-related advertisements in relation to the total number of commercials during the program. Show your work and write your answer below.

____

3. Calculate the amount of time devoted to nutrition-related advertising during the program's time period.

   EXAMPLE: One minute, 15 seconds of nutrition-related advertising during a 30-minute program.

____

- Identify personal values/attitudes

- Draw conclusions

4a. Calculate the average length (in seconds) of a nutrition-related commercial during the program.

b. How does this figure compare with the average length of other types of commercials during the program?

Part 2

Choose an advertisement from a magazine or newspaper for a food product. Cut out the advertisement and answer the following questions. Bring the ad to class with you.

1. What information is given about the product?

2. Do you question any of the product information? If so, please explain.

3. How are you encouraged to buy this product?

4. What appeal has been made? Does it appeal to your taste, lifestyle, emotion, or attitude?

5. Did this advertisement make you want to use the product? Why or why not?

____

____

____

6. Why did this advertisement catch your attention?

____

____

____

TELEVISION COMMERCIAL DATA SHEET

Date: __________ Time Period: __________ AM/PM

Program ______________________________

Start Time: __________ AM/PM

End Time: __________ AM/PM

What is being advertised?

____

____

Start Time: __________ AM/PM

End Time: __________ AM/PM

What is being advertised?

____

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Start Time: __________ AM/PM

End Time: __________ AM/PM

What is being advertised?

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Start Time: __________ AM/PM

End Time: __________ AM/PM

What is being advertised?

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What is being advertised?

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Start Time: __________ AM/PM

End Time: __________ AM/PM

What is being advertised?

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Start Time: __________ AM/PM

End Time: __________ AM/PM

What is being advertised?

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ASSIGNMENT SHEET 4

VALUING FOOD IN YOUR WORLD

1

Name ______________________________ Score __________

OBJECTIVE 8

Profile personal food choices.

INTRODUCTION

A number of factors influence your choice of foods. Often, you may not realize all of the factors which affect your decisions. A food diary will help you to profile your choices.

EQUIPMENT AND SUPPLIES

- Paper and pen or pencil

INSTRUCTIONS

- Follow written instructions

- Use standard grammar, spelling, and capitalization
- State ideas clearly
- Use complete sentences
- Complete forms and records

- Collect/record information
- Define a problem
- Identify underlying causes
- Analyze/synthesize information
- Draw conclusions

Part 1

- Start a *food diary* on the sheet provided. List all the foods and beverages you consumed each day for one week. Be sure to include foods you consumed as snacks in addition to your meals.
- Include the *portion size* of each food. (EXAMPLE: 3 cookies, 1 piece chicken breast) In the column headed "Influences/Time" use the codes listed below to describe what influenced your choice(s) for each meal (B, L, or D). For snack(s), state what you were doing at the time of each snack (your activities).

Influences

FAM - Family

FRI - Friends

REL - Religious customs

ETH - Ethnic or cultural background

COS - Cost

AVL - Availability

HEL - Health reasons

CON - Convenience

ADV - Advertisement

OT - Other (explain)

FOOD DIARY

	Breakfast (B)	Lunch (L)	Dinner (D)	Snacks (S)	Influences/Time
Monday					B: L: D: S:
Tuesday					B: L: D: S:
Wednesday					B: L: D: S:
Thursday					B: L: D: S:
Friday					B: L: D: S:
Saturday					B: L: D: S:
Sunday					B: L: D: S:

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Part 2

1. Did you eat any of these foods when you were bored or frustrated? If so, which ones?

2. Did you prepare any of the foods yourself? If so, why?

3. Can you think of any food you wish you had not eaten? Briefly explain.

4. Do you see any *patterns* in your eating habits? Briefly explain.

    a. Which meals do you always/usually eat?

    b. Which do you always/usually miss?

c. Does a pattern exist in the kinds of foods that you eat?

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d. What is the primary influence on your food choices?

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e. Does a pattern exist in your activities when you eat snacks?

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ASSIGNMENT SHEET 5 VALUING FOOD IN YOUR WORLD

Name ______________________________ Score __________

OBJECTIVE 10 **Trace the origin of ingredients in a food item.**

INTRODUCTION

Many foods and their ingredients that are familiar to us actually originated in other countries or regions. By tracing their origins, you can discover the "global" nature of many "American" foods.

EQUIPMENT AND SUPPLIES

- Resources at library
- Paper and pen or pencil
- Cookbook

INSTRUCTIONS

- Select a recipe that is a personal favorite.
- Investigate the origin of the ingredients in the recipe (meat, vegetable, spices, fruits, etc.).
- Read about the country of origin from sources at the library. What geographical and social influences helped make these ingredients typical of the country of origin?
- Report your findings to the class in a brief oral report.
- File your results (after your instructor has returned your work to you). Later assignments will add to your "portfolio."

- Gain factual information
- Select useful resources
- Locate resources
- Find materials in library
- Follow written instructions

- Make informative presentations
- Use good speaking techniques

- Collect/record information

ASSIGNMENT SHEET 6

VALUING FOOD IN YOUR WORLD

Name ______________________________ Score __________

OBJECTIVE 13

Report on the food heritage of another country or U.S. region.

INTRODUCTION

The foods that are characteristic of another country or region help define that country or region. Investigating their food heritage can reveal a lot about other peoples and their experiences.

EQUIPMENT AND SUPPLIES

- Current resources from library or classroom
- Paper and pen or pencil

INSTRUCTIONS

- Gain factual information
- Select useful resources
- Locate resources
- Find materials in library
- Follow written instructions

- Make informative presentations
- Use good speaking techniques

- Collect/record information

- Research an area of interest to you. It may be a region in the U.S. or another country.
- Use current library or classroom resources.
- Give an oral report of your findings. Cover the following points:
    - ☐ What is the name of the region or country, and where is it located?
    - ☐ What foods are indigenous to the region or country?
    - ☐ What is the climate like?
    - ☐ What are some of the cooking methods and favorite dishes?
    - ☐ What factors influenced the cuisine of this area?
    - ☐ Are any foods taboo?
    - ☐ Are there any special meals? When are they eaten?

ASSIGNMENT SHEET 7 VALUING FOOD IN YOUR WORLD

Name ____________________ Score __________

OBJECTIVE 15 **Report on food supply factors and/or issues.**

INTRODUCTION

Our supply of food is influenced by a variety of factors and events. Sometimes, an event may not appear to play a role in the food supply, but does. Examples of these factors and their impact can be found almost every day.

EQUIPMENT AND SUPPLIES

- Current newspapers, magazines, library resources
- Paper and pen or pencil

INSTRUCTIONS

- Using current newspapers, magazines and library resources, research two factors that can affect food supply.
- Use current and historical examples.
- Report your findings to the class in a one-page paper. Cover at least the following points:
  - ☐ The factor and how it *can* affect the food supply
  - ☐ How the factor *has affected* the food supply (at least one example)
  - ☐ Effects on the food supply
  - ☐ How the supply returned to normal

- Gain factual information
- Draw conclusions
- React to written material
- Select useful resources
- Locate resources
- Find materials in library
- Follow written instructions

- Use standard grammar, spelling, and capitalization
- State ideas clearly
- Use complete sentences

- Make informative presentations

OBJECTIVE SHEET

EXAMINING FOOD, NUTRIENTS, AND THE BODY

2

INTRODUCTION

Your body is a collection of organs, tissues, cells, molecules and atoms. These "parts" are continually changing, even though they appear to remain the same. The skin you have now is not the same skin that covered you ten years ago. The fat under your skin is not the same fat that was there a year ago. The old cells have been entirely replaced by new cells since then. To keep this process going, you must continually replenish the energy you burn. All the component parts you are made of come from the nutrients found in the foods you eat. As long as all of the nutrients are there in sufficient amounts, your body should keep working properly.

FOCUS ASSIGNMENTS

Reading Comprehension
- Gain factual information
- Analyze cause and effect
- Draw conclusions

Language
- Use standard grammar, spelling, and capitalization
- State ideas clearly

Composition
- Use complete sentences

FOCUS ASSIGNMENTS

PREREADING:	Read Handout 1, "Alcohol and Nutrition." As you read, think about the nutritional risks associated with drinking alcohol.
WRITING:	Write a short (one page) discussion on the affects of alcohol on nutrition. Discuss your answers in class.

UNIT OBJECTIVE

After completing this unit, you will show the following competencies by mastering the activities on the Assignment Sheets and by scoring at least 85% on the Written Test.

SPECIFIC OBJECTIVES

1. Explain why food is needed by the body.
2. Describe how the body turns food into energy.
3. Explain the impact of factors that determine total calorie intake requirements.
4. Explain the impact of factors that influence an individual's basal metabolic rate.
5. Calculate daily kilocalorie intake. (Assignment Sheet 1)
6. Match the nutrients in food to their descriptions.
7. Distinguish among the functions of nutrients.
8. Explain nutrient density.
9. Distinguish between complete and incomplete proteins.
10. Identify food sources of complete and incomplete proteins.
11. List principal food sources of carbohydrates.
12. Test for carbohydrates in foods. (Assignment Sheet 2)
13. Distinguish between saturated and unsaturated fats.
14. Identify food sources of saturated and unsaturated fats.
15. Test for the presence of fats in foods. (Assignment Sheet 3)
16. Distinguish between fat-soluble and water-soluble vitamins.
17. Identify food sources of fat-soluble and water-soluble vitamins.
18. Analyze the solubility of vitamins. (Assignment Sheet 4)
19. State food sources of minerals.
20. Define the impact of nutrient levels in the diet.
21. Evaluate the nutritional qualities of a recipe from another country or culture. (Assignment Sheet 5)

INFORMATION SHEET

EXAMINING FOOD, NUTRIENTS, AND THE BODY

2

OBJECTIVE 1

Required Activities/
Resources
– Discussion

Optional Activities/
Resources in
Instructor's Guide

Explain why food is needed by the body.

? Why does your body need food?

WORDS YOU SHOULD KNOW	
food	nutritive material taken into the body to create energy
energy	the power your body uses to maintain life. Your body produces energy by using oxygen to burn food. Energy is measured in kilocalories.
kilocalorie	a unit by which food energy is measured. It is the amount of heat required to raise the temperature of 1 kilogram of water 1 degree Celsius. The more familiar term Calorie actually means kilocalorie.
nutrient	a chemical substance in food that contributes to the proper functioning of the body

- Satisfy hunger and give pleasure
- Provide the body with nutrients

☑ **NOTE:** Nutrients contained in food are made of the same chemicals as your body.

- Provide and replenish energy

☑ **NOTE:** The body constantly uses its energy supply, even while you are sleeping.

- Build and repair cells

☑ **NOTE:** The components of your body are helped to grow by building new cells and replacing worn out ones.

- Regulate body processes

  EXAMPLE: Examples of the vital processes that are continuous in the body are breathing, digesting food, and building new red blood cells.

OBJECTIVE 2

Required Activities/
Resources
– Transparency
Masters 1 and 2
– Discussion

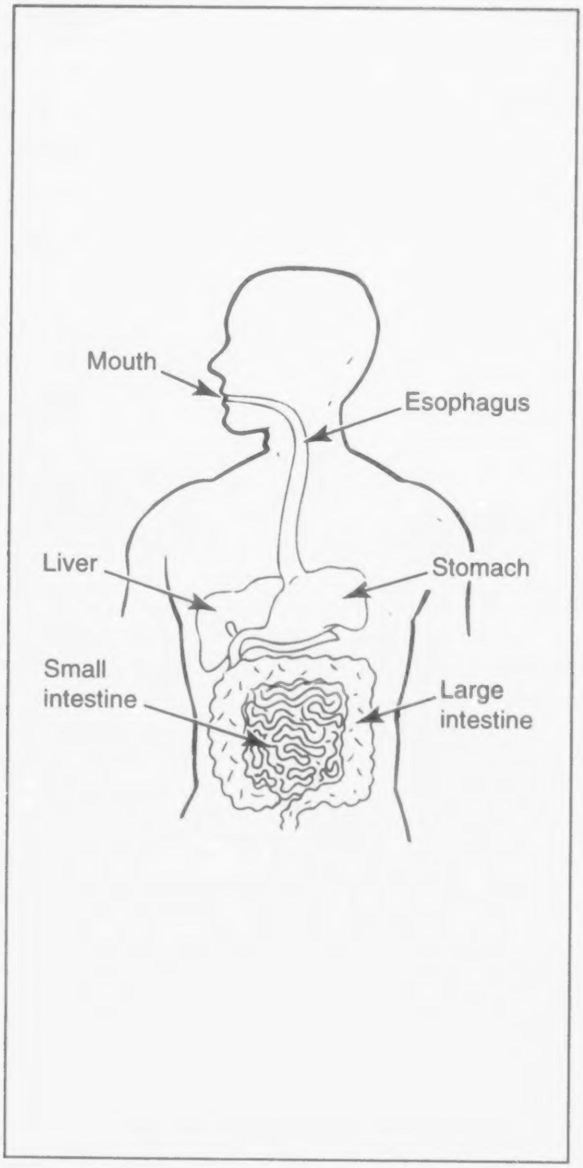
Optional Activities/
Resources in
Instructor's Guide

Describe how the body turns food into energy.

WORDS YOU SHOULD KNOW	
enzyme	substance that speeds up a chemical process
peristaltic waves	muscle action that churns food and pushes it through the digestive system
chyme	thin mushy mixture of food that has been churned, broken up, and mixed with gastric juices
villi	tiny finger-like projections that line the walls of the small intestine; villi absorb the nutrients as the food is digested
absorption	process that transfers the useable nutrients from the digestive system to the bloodstream

☑ **NOTE:** The food you eat is broken down into liquids by the process of digestion. As food is digested, nutrients are absorbed into the bloodstream and are eventually used by the body. The following is an overview of the digestion process. A more in-depth explanation of how the body digests food will require further study.

FIGURE 1



- **Mouth** – Digestion begins as soon as food enters your mouth. Saliva helps soften food and contains the enzyme ptyalin to help change starchy food into sugar. The teeth break up food into small pieces which mix with the saliva.

- **Esophagus** – When you swallow chewed food, it is moved by peristaltic wave action to the stomach.

- **Stomach** – The stomach churns, breaks up the food and mixes it with gastric juices to form chyme. The gastric juices contain hydrochloric acid and the enzyme pepsin which begin to break down protein.

  ☑ **NOTE:** A thin layer of mucus lines the stomach to protect it from the acid. Liquids and carbohydrates pass through the stomach quickly, proteins stay longer and fats stay the longest.

- **Small intestine** – Enzymes, intestinal fluids, juices from the pancreas and bile from the liver continue to break down the chyme into nutrients. Once broken down, the nutrients are absorbed by the villi and digestion is complete. The nutrients enter the blood stream and are either carried to where they are immediately needed or carried to the liver. Waste is carried to the large intestine.

- **Liver** – Blood vessels carry the nutrients to the liver from the villi in the small intestine. The liver converts the nutrients into different forms needed by the body and sends them into the blood stream. The nutrients that are not immediately needed are stored or used to form other body chemicals. Nutrients are excreted if the body cannot use them.

- **Large intestine** – About ten percent of the food you eat ends up as waste and continues to be processed by the large intestine. Water is absorbed by the large intestine and then moved to the kidneys to be eliminated as urine. Solid waste from digestion is called feces and is eliminated as a bowel movement.

OBJECTIVE 3

Explain the impact of factors that determine total calorie intake requirements.

Required Activities/
Resources
- Handout
- Transparency Masters 3 and 4
- Discussion

Optional Activities/
Resources in
Instructor's Guide

WORDS YOU SHOULD KNOW	
metabolism	chemical process that takes place in the cells after absorption; nutrients are broken down and used for energy, growth, or heat
basal metabolism	the amount of heat a person gives off when the body is at rest; the amount of energy the body needs to maintain basic processes such as building cells, creating energy, and keeping the body systems working
calorie (kilocalorie)	a unit by which food energy is measured; each food has a different energy value
energy	the power your body uses to maintain life; your body produces energy by using oxygen to burn food; energy is measured in kilocalories

- Age
  - ☐ Growing children and adolescents require more calories than older adults.
  - ☐ The body's metabolism gradually slows with age.
- Weight
  - ☐ The more a person weighs, the more energy/calories are required per unit of body weight.
- Gender
  - ☐ Men generally have more muscle tissue than women, requiring more energy per unit of body weight.
  - ☐ Women generally have more body fat than men, requiring less energy per unit of body weight.

- Health
  - ☐ People in good physical condition burn more calories.
  - ☐ Muscle tissue burns more calories than fat tissue.
- Physical activities
  - ☐ Strenuous activities (jogging, hammering) burn more calories than sedentary activities (sitting, reading).
- Basal metabolic rate (BMR)
  - ☐ Everyone's body works at a different rate to use the energy needed to maintain basic processes.
  - ☐ A high BMR requires more energy per unit of body weight than a low BMR.
- Environmental temperature
  - ☐ More energy is needed when the temperature is extremely hot or cold.

OBJECTIVE 4

Required Activities/
Resources
– Transparency
Masters 5 and 6
– Handout
– Discussion

Optional Activities/
Resources in
Instructor's Guide

Explain the impact of factors that influence an individual's basal metabolic rate.

WORDS YOU SHOULD KNOW	
basal metabolic rate (BMR)	the speed at which the body uses energy to maintain its basic processes; everyone has a different BMR

- Body build and composition
  - ☐ Large or tall people usually have higher BMR per unit of body weight than small or short people.
  - ☐ Lean tissue, such as muscle, will increase BMR.
- Age
  - ☐ Children and adolescents have a higher BMR than adults because of periods of rapid growth.
  - ☐ The BMR slows as the body ages.

- Gender
  - ☐ Men usually have more lean tissue and require more energy per unit of body weight than women.
- Health
  - ☐ The BMR of a well-nourished person is higher than for an undernourished person.
  - ☐ High body temperature, such as high fever, will increase the BMR.
  - ☐ Very low body temperature will use less energy and result in a low BMR.
- Gland secretions
  - ☐ The thyroid gland controls the speed at which oxygen and nutrients are used by cells. Undersecretion of the thyroid slows the BMR, oversecretion may accelerate the BMR.
  - ☐ Adrenalin speeds up the heart rate and other body processes which may increase the BMR.

OBJECTIVE 5 **Complete Assignment Sheet 1.**

OBJECTIVE 6 **Match the nutrients in food to their descriptions.**

Optional Activities/
Resources in
Instructor's Guide

WORDS YOU SHOULD KNOW	
compound	a substance composed of two or more elements or parts
element	a substance that cannot be broken down into simpler substances by chemical means
glycerol	a fat-related liquid contained in all fats
glycogen	a substance stored in the liver and muscles that can be converted rapidly into glucose; the storage form of carbohydrates

WORDS YOU SHOULD KNOW	
amino acid	chemical compounds which are the building blocks of proteins
monosaccharide	simple sugars that include fructose and glucose
disaccharide	double sugars that include sucrose
fatty acids	organic acids which combine with glycerol to form fat (triglycerides)

- **Carbohydrates** – chemical compounds made of the elements carbon, hydrogen and oxygen that are converted by the body into glucose and glycogen

  ☐ sugars – simple carbohydrates; easily absorbed by the body; includes monosaccharides and disaccharides

  ☐ starches – complex carbohydrates; occur naturally in vegetables; broken down into simple sugars during digestion

  ☐ fiber – complex carbohydrate; roughage; the natural structural part of a plant that cannot be digested; aids in digestion by moving food through the intestine

- **Fats (triglycerides)** – a type of lipid; made of fatty acids and glycerol which contain carbon, oxygen, hydrogen; a mixture of three types of fatty acids: saturated, monounsaturated, and polyunsaturated

  ☑ **NOTE:** Fats contain the same elements as carbohydrates but in different *proportions.*

- **Proteins** – made up of amino acids which combine and create different kinds of proteins; composed of carbon, oxygen, hydrogen, and nitrogen

  ☑ **NOTE:** Twenty amino acids have been identified. Most can be made by the body. However, eight amino acids are called *essential amino acids* because they cannot be made by the body. They must come from the food you eat.

- **Vitamins** – chemical compounds that consist of carbon, oxygen, hydrogen, and nitrogen

EXAMPLE: Fat-soluble vitamins: vitamins A, D, E, and K; water-soluble vitamins: vitamins B and C

- **Minerals** — elements which are used by the body in its regulatory functions and in forming some of its structures
  - ☐ Minerals cannot be made by the body; they are found in food, rocks, soil, and water.
  - ☐ *Macrominerals* are needed by the body in large quantities.

    EXAMPLE: calcium, phosphorus, magnesium, chlorine, potassium, sodium
  - ☐ *Trace elements* are used by the body in much smaller amounts.

    EXAMPLE: iron, iodine, zinc
- **Water** — a clear, colorless liquid composed of the chemicals hydrogen and oxygen
  - ☐ Water is essential to human life.
  - ☐ Two-thirds to three-quarters of an adult's body weight is water.

OBJECTIVE 7

Required Activities/
Resources
– Discussion

Optional Activities/
Resources in
Instructor's Guide

Distinguish among the functions of nutrients.

WORDS YOU SHOULD KNOW	
glucose	a simple sugar, formed by the breakdown of carbohydrates, that is used by the body cells for energy; blood sugar; dextrose
adipose tissue	groups of cells that store fats
soluble	capable of being dissolved

- **Carbohydrates**
  - ☐ Provide a quick source of energy for the body

    ☑ **NOTE:** Carbohydrates are digested and absorbed into the body more quickly than proteins or fats.

  - Keep tissue proteins (such as that found in muscle) from being broken down by the body for use as an energy source
  - Prevent fats from being inefficiently combined with oxygen to be burned by the body cells for fuel and energy
  - Provide bulk to aid digestion and elimination (fiber)
  - Provide glucose, an immediate energy source
  - Provide lactose (milk sugar)

    ☑ **NOTE:** Lactose encourages the growth of favorable intestinal bacteria, has laxative properties, and enhances the absorption of calcium.

- **Fats (triglycerides)**
  - Are a more concentrated source of heat and energy than carbohydrates or proteins
  - Are a source of essential fatty acids needed for normal cells and metabolism and for the normal growth and maintenance of tissue
  - Store energy in adipose tissue

    ☑ **NOTE:** Fats provide padding to protect vital organs against trauma. Fats also act as insulation for body temperature.

  - Slow digestion in the stomach

    ☑ **NOTE:** Fatty food remains in the stomach longer and gives a feeling of fullness.

  - Add flavor to food
  - Are needed to transport fat-soluble vitamins

    EXAMPLE: Vitamins A,D,E, and K

- **Proteins**
  - Help the body build new cells and repair old ones
  - Are used for energy if the body does not get enough carbohydrates or fat

    - Help make antibodies that fight infection
    - Help form hormones that regulate body processes
    - Combine with the mineral iron to form hemoglobin in red blood cells
    - Help with normal blood clotting

- **Vitamins**
    - Help speed the chemical processes in your body
    - Do not provide energy
    - Do not become part of or build any part of your body
    - Vitamin A (retinol) – contributes to good skin; growth; eye pigment
    - Vitamin D (calciferol) – helps body use calcium and phosphorus for strong bones and teeth
    - Vitamin E (tocopherol) – protects vitamin A against oxygen; aids in use of energy foods
    - Vitamin K (phytonadione) – helps blood clot properly
    - Vitamin C (ascorbic acid) – helps to firm cementing material of cells to make strong blood vessel walls
    - Vitamin B1 (thiamine) – helps release energy from carbohydrates; promotes good appetite; digestive functions
    - Vitamin B2 (riboflavin) – promotes smooth skin, good eye function; helps body metabolize protein and energy foods
    - Vitamin B6 (pyridoxine hydrochloride) – promotes nervous tissue function; regeneration of red blood cells
    - Vitamin B12 (cyanocobalamin) – promotes normal growth and functioning of cells
    - Niacin (nicotinic acid) – maintains good nerves and digestion
    - Folic acid – helps mature red blood cells
    - Biotin – needed to break down fats, carbohydrates and proteins

- Pantothenic acid – needed for production of antibodies, for the metabolism of energy nutrients and the production of cholesterol

- **Minerals**
  - Used by the body for many different processes
  - Become part of the body: bones, tissues and fluids
  - Calcium – helps in making and maintaining strong bones and teeth; helps blood to clot; aids in functioning of the heart and nervous system
  - Phosphorus – helps the body produce energy; aids in the metabolism of fats and carbohydrates; necessary for the formation of bones and teeth
  - Magnesium – helps enzymes speed up chemical reactions; needed for healthy nervous system and muscle action; forms part of the skeletal system, soft tissue, and blood
  - Sodium, chlorine, and potassium – help regulate body fluids; needed for healthy muscle action
  - Iodine – needed for thyroid gland to work properly
  - Zinc – helps in healing wounds; growth and reproduction; helps in the use of carbohydrates, fats and proteins
  - Iron – necessary for the formation of hemoglobin (the substance in red blood cells that carries oxygen)

- **Water**
  - Helps change food into nutrients
  - Transports water-soluble vitamins

    EXAMPLE: Vitamins B and C
  - Transports nutrients to the cells
  - Carries wastes to intestines for elimination
  - Regulates body temperature

OBJECTIVE 8

Required Activities/
Resources
– Transparency
Master 8

Optional Activities/
Resources in
Instructor's Guide

Explain nutrient density.

- Foods that are rich in nutrients and have a low calorie count are *nutrient dense.*
- Nutrient density is the amount of nutrients provided *per calorie.*
- Nutrient-dense foods provide more nutrients than calories.

  EXAMPLE: A bowl of vegetable soup is nutrient dense; it is low in calories but high in nutrient content.
- Low nutrient density foods have *empty calories*: they are high in calories without providing worthwhile nutrients.

  EXAMPLE: A candy bar is high in calories but does not provide any worthwhile nutrients. The calories are "empty."

OBJECTIVE 9

Required Activities/
Resources
– Discussion
– Transparency
Master 9

Optional Activities/
Resources in
Instructor's Guide

Distinguish between complete and incomplete proteins.

WORDS YOU SHOULD KNOW	
amino acids	the building blocks of which proteins are made
essential amino acids	amino acids your body cannot make
vegetarian	a person who does not eat meat, poultry, and fish; vegetarians eat mostly plant foods, while some eat dairy products and eggs

- **Complete proteins**
  - ☐ Contain the eight essential amino acids
  - ☐ Are found mostly in foods of animal origin
  - ☐ Build and repair tissue
- **Incomplete proteins**
  - ☐ Contain only part of the essential amino acids
  - ☐ Cannot maintain life or support growth by themselves

- ☐ Are found mainly in foods of plant origin

☑ **NOTE:** Incomplete proteins can be combined in the diet to make *complementary proteins* which provide the essential amino acids found in complete proteins. The body makes its own complete proteins if a variety of plant foods and enough calories are eaten during the day. Complementary proteins can be used by vegetarians to maintain good health.

OBJECTIVE 10

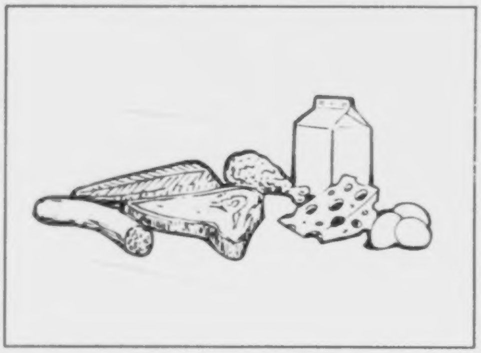
Required Activities/ Resources
- Transparency Masters 10 and 11
- Discussion

Optional Activities/ Resources in Instructor's Guide

Identify food sources of complete and incomplete proteins.

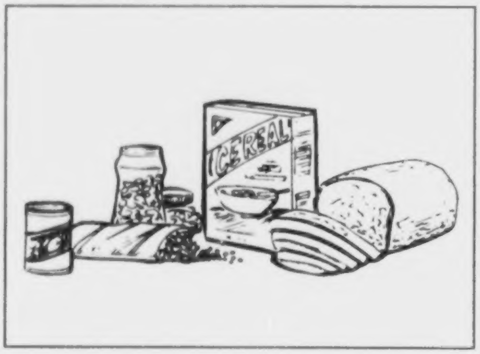
- Complete proteins
    - ☐ fish
    - ☐ poultry
    - ☐ meat
    - ☐ dairy products
    - ☐ eggs

FIGURE 2



- Incomplete proteins
    - ☐ grains: bread, cereal, pasta
    - ☐ nuts
    - ☐ legumes: dried peas, beans

FIGURE 3



☑ **NOTE:** Incomplete proteins can be combined in the diet to make *complementary proteins* which provide the essential amino acids found in complete proteins. Complementary proteins are used by vegetarians to maintain good health. For example, pinto beans and cornbread or peanut butter and wheat bread will provide the essential amino acids found in a complete protein.

OBJECTIVE 11

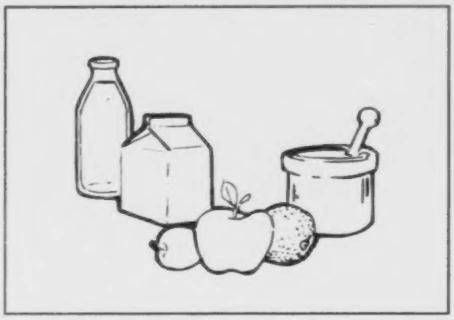
Required Activities/
Resources
– Discussion
– Transparency
Master 12

Optional Activities/
Resources in
Instructor's Guide

List principal food sources of carbohydrates.

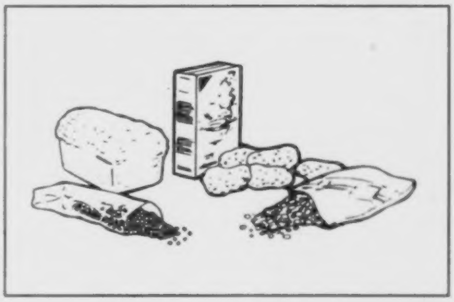
- Sugar
  - ☐ fruit
  - ☐ fruit juice
  - ☐ table sugar
  - ☐ honey, molasses
  - ☐ soft drinks and other sweets
  - ☐ milk (lactose or milk sugar)

FIGURE 4



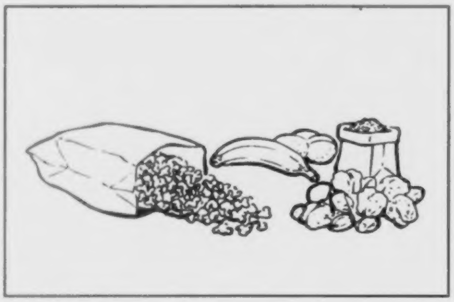
- Starch
  - ☐ grains: bread, cereal, pasta
  - ☐ potatoes
  - ☐ rice
  - ☐ legumes (dried peas and beans)

FIGURE 5



- Fiber
  - ☐ bran
  - ☐ whole grain foods
  - ☐ vegetables - raw and unpeeled
  - ☐ fruit - raw and unpeeled
  - ☐ nuts
  - ☐ seeds
  - ☐ popcorn
  - ☐ legumes (dried peas and beans)

FIGURE 6



OBJECTIVE 12

Complete Assignment Sheet 2.

OBJECTIVE 13

Required Activities/
Resources
– Discussion

Optional Activities/
Resources in
Instructor's Guide

Distinguish between saturated and unsaturated fats.

WORDS YOU SHOULD KNOW	
cholesterol	a fat-like substance found in all animal foods and saturated fats; chemical found in blood, tissue, and digestive juices

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- **Saturated fats**
  - ☐ Contain all the hydrogen they can hold
  - ☐ Are usually solid at room temperature
  - ☐ Can be oily fats that have been converted to solids by the addition of hydrogen (hydrogenation)
  - ☐ Raise blood cholesterol levels in many people, increasing the risk for heart disease
  - ☐ May contain less essential fatty acids if hydrogen has been added to the product

    ☑ **NOTE:** *Essential fatty acids* are those that cannot be produced by the body and must be absorbed from food.

  - ☐ Are usually of animal origin

    EXAMPLE: Meat and dairy products

  - ☐ Are found in some vegetable fats

    EXAMPLE: Coconut, palm, and palm kernel oil

- **Unsaturated fats**
  - ☐ Include monounsaturated and polyunsaturated fats
  - ☐ Have less hydrogen than saturated fats
  - ☐ Are usually in liquid form at room temperature
  - ☐ Are usually of plant origin
  - ☐ Can lower blood cholesterol levels when included in the diet

OBJECTIVE 14

Required Activities/
Resources
– Transparency
Masters 13 and 14

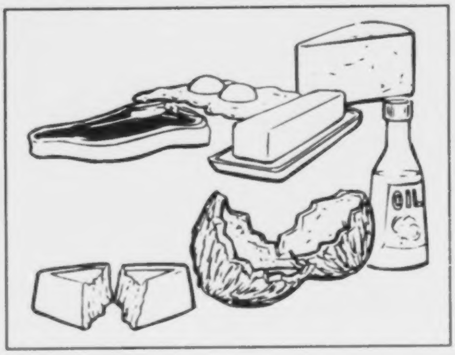
Optional Activities/
Resources in
Instructor's Guide

Identify food sources of saturated and unsaturated fats.

WORDS YOU SHOULD KNOW	
hydrogenation	process by which hydrogen is chemically added to an unsaturated fat

- **Saturated fats**

  FIGURE 7

  ☐ Plant origin

  - chocolate
  - coconut and coconut oil
  - palm oil
  - palm kernel oil
  - hydrogenated vegetable shortenings

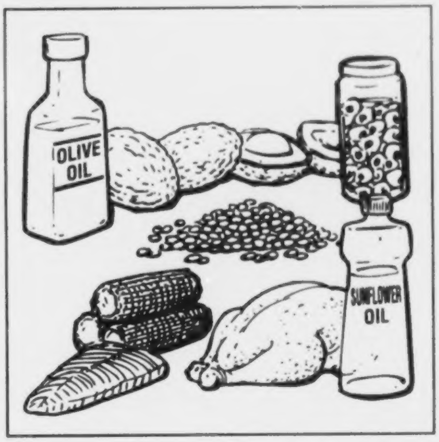
  ☐ Animal origin

  - red meats
  - egg yolks
  - lard
  - butter
  - cream or whole milk
  - ice cream
  - whole milk cheese
  - poultry

- **Unsaturated fats (monounsaturated and polyunsaturated)**

  ☐ Plant origin

  FIGURE 8

  - Vegetable oils that have not been hydrogenated
  - Avocados and a variety of nuts
  - Monounsaturated fats – found mainly in olive, canola and peanut oils
  - Monosaturated fats – found in semisoft margarine made from vegetable oils
  - Polyunsaturated fats – found mainly in fats from plants such as corn, sunflower, cottonseed, and soybean oils

- Animal origin
    - Polyunsaturated and monosaturated fats – found in some types of fish
    - Monounsaturated fats – found in some types of poultry

☑ **NOTE:** Cholesterol (a fat-like substance) is found in all animal foods.

OBJECTIVE 15

Complete Assignment Sheet 3.

OBJECTIVE 16

Distinguish between fat-soluble and water-soluble vitamins.

Optional Activities/
Resources in
Instructor's Guide

- **Fat-soluble vitamins**

FIGURE 9

  - Vitamin A (retinol), Vitamin D (calciferol), Vitamin E (tocopherol), and Vitamin K (phytonadione)
  - Can be stored in the body and cause toxic (poisonous) effects if excess amounts are taken
  - Are not absorbed properly by the digestive tract unless a sufficient amount of fatty foods are included in the diet
  - Must be transported to various body sites in blood lipids
  - Can be lost in foods when poor storage techniques result in wilting or dehydration of fresh items
  - Are not destroyed in foods by ordinary cooking methods
- **Water-soluble vitamins**
  - Vitamin C (ascorbic acid), Vitamin B1 (thiamine), Vitamin B2 (riboflavin), Vitamin B6 (pyridoxine hydrochloride), Vitamin B12 (cyanocobalamin), Niacin (nicotinic acid), Folic acid, Biotin, and Pantothenic acid
  - Are usually not stored in the body because they are excreted in urine

☑ **NOTE:** Vitamin B12 is an exception to this rule; it is stored in the liver.

- Can be lost in food when poor storage techniques result in wilting and dehydration of fresh items
- Are easily destroyed in foods by ordinary cooking methods
- Are best preserved in prepared fruits and vegetables by cooking these foods for a short time in a covered container with small amounts of boiling water

OBJECTIVE 17

Identify food sources of fat-soluble and water-soluble vitamins.

Optional Activities/
Resources in
Instructor's Guide

- **Fat-soluble vitamins**
    - Vitamin A (retinol) – liver, whole milk, cream, butter, cheese, egg yolk, green and yellow vegetables, yellow fruits
    - Vitamin D (calciferol) – vitamin D fortified milk, egg yolks, liver
    - Vitamin E (tocopherol) – vegetable oils, egg yolks

      ☑ **NOTE:** If vegetable oils are allowed to become rancid, the vitamin E is destroyed.

    - Vitamin K (phytonadione) – green leafy vegetables, liver, cauliflower, cabbage
- **Water-soluble vitamins**
    - Vitamin C (ascorbic acid) – citrus fruits, tomatoes, cabbage, potatoes, strawberries

      ☑ **NOTE:** Vitamin C is the vitamin most easily destroyed in foods. Vitamin C is best obtained by eating fresh, raw fruits and vegetables.

    - Vitamin B1 (thiamine) – enriched and whole grain cereals, pork, legumes (beans and dried peas), liver, oysters
    - Vitamin B2 (riboflavin) – milk, cheese, yogurt, liver, kidneys, legumes, whole grain and enriched cereals

      ☑ **NOTE:** When food products are exposed to light, they may lose some riboflavin content.

☐ Vitamin B6 (pyridoxine) – whole grain and enriched cereals, avocados, bananas, green leafy vegetables, potatoes, oatmeal, meat (especially organ meat), fish

☑ **NOTE:** Vitamin B6 is easily destroyed by sunlight.

☐ Vitamin B12 (cyanocobalamin) – lean meat, organ meat, eggs, dairy products

☑ **NOTE:** Vitamin B12 is not available from plant sources.

☐ Niacin (nicotinic acid) – enriched breads and cereals, organ meats, legumes, nuts

☐ Folic acid (folacin) – green leafy vegetables, organ meats, asparagus, lima beans

☐ Biotin – egg yolk, organ meats, mushrooms, peanuts, dark green vegetables

☐ Pantothenic acid – organ meats, eggs, whole grain cereals and breads, nuts, dark green vegetables

OBJECTIVE 18

Complete Assignment Sheet 4.

OBJECTIVE 19

State food sources of minerals.

Optional Activities/
Resources in
Instructor's Guide

- Calcium – milk and milk products, egg yolks, green leafy vegetables, fish eaten with bones (such as canned fish)

- Phosphorus – milk and milk products, fish, poultry, legumes, whole grain breads and cereals

- Magnesium – organ meats, whole grain cereals and breads, nuts, legumes, green leafy vegetables, milk, and egg yolks

- Sodium – found in most foods, table salt, baking powder, baking soda, cheese, processed foods

- Chlorine – found in most foods, table salt

- Potassium – fish, meat, bananas, citrus fruit and milk

- Iodine (trace mineral) – saltwater seafood, iodized salt, most foods of animal origin
- Zinc (trace mineral) – seafood, meat, eggs, poultry, milk, and whole grains
- Iron (trace mineral) – liver, kidney, heart, lean meats, egg yolks, nuts, dried fruits, whole grain and enriched breads and cereals, legumes

OBJECTIVE 20

Optional Activities/ Resources in Instructor's Guide

Define the impact of nutrient levels in the diet.

What happens if you get too much of a nutrient or not enough of a nutrient?

Nutrient	Too Much	Not Enough
Carbohydrates	• Store extra starch and sugar as fat • Tooth decay and gum disease	• Kidney damage • Fatigue, lack physical energy • Constipation, intestinal diseases
Fats (triglycerides)	• Stored as body fat • Heart disease, high blood pressure	Loss of weight, loss of energy
Proteins	• Converted and stored as fat • Large doses of amino acids supplements can be toxic; may promote cancer; blood disease	• Poor muscle development • Lower resistance to infection; slower recovery from injuries or illness • Loss of weight and energy • Kwashiorkor (deficiency disease that causes mental retardation); inability to resist disease; stunted growth
Vitamins		
Vitamin A	Excess unlikely; fatigue, headaches, nausea, stunted growth in children	Eyes sensitive to light, night blindness, stunted growth
Vitamin D	Weight loss, kidney stones, lung damage, deafness	Rickets (disease), body will not use calcium and phosphorous properly
Vitamin E	Nausea, dizziness, extreme fatigue, muscle weakness	Shortage is rare; muscles become wasted
Vitamin K	Jaundice in infants	Shortage is rare; loss of calcium from bones
Vitamin C	Diarrhea, kidney and bladder infections	Weakness, bleeding gums, bruising, appetite and weight loss

Nutrient	Too Much	Not Enough
Vitamin B1	Unknown	Swelling of heart, leg cramps, numbness in hands and feet
Vitamin B2	Unknown	Sore tongue, eyes sensitive to light, skin disorders
Vitamin B6	Joint stiffness, dependency on high doses	Skin disorders, nausea, anemia, kidney stones, depression
Vitamin B12	Unknown	B-12 deficiency anemia, paleness, heart fluttering, numbness in hands and feet, loss of balance
Niacin	Increased blood sugar, liver abnormalities, ulcers	Sore mouth, mental confusion, cracked skin
Folic acid	May mimic symptoms of B12 shortage	Anemia
Biotin	Unknown	Shortage is rare; loss of appetite, fatigue, depression
Pantothenic acid	Need for thiamin increases, thiamine shortage possible	Shortage is rare; abdominal cramps, fatigue, restlessness, inability to sleep
Minerals		
Calcium	Kidney stones	Osteoporosis (bone loss), poorly formed bones and teeth, high blood pressure
Phosphorus	Removal of calcium from bones	Poor bones, teeth and growth
Magnesium	Unknown	Muscle tremors, shaking
Sodium, Chlorine, Potassium	High blood pressure, edema (swelling)	Fainting, vomiting, water balance is upset
Iodine	Unknown	Goiter (large swelling of thyroid gland in neck)
Zinc	Fever, nausea, vomiting	Loss of sense of smell, poor appetite, slow healing, retarded growth
Iron	Liver damage, constipation	Iron deficiency anemia, fatigue, weakness
Water	Not a health hazard. Water is lost through elimination and perspiration.	Dehydration, dry mouth, fatigue

OBJECTIVE 21

Complete Assignment Sheet 5.

490

ASSIGNMENT SHEET 1

EXAMINING FOOD, NUTRIENTS, AND THE BODY

2

Name ______________________________ Score __________

OBJECTIVE 5

Calculate daily kilocalorie intake.

EQUIPMENT AND SUPPLIES

- Food diary from Unit 1
- Pencil or pen
- Calculator (optional)

INSTRUCTIONS

- Follow written instructions
- Use complete sentences
- Calculate with whole numbers
- Solve practical problems
- Use calculator for computation
- Collect/record information
- Draw conclusions

- Obtain your food diary from Unit 1. Find completed diary entries that cover a full week. Or, start a new week's diary entries.
- Answer the questions below.

1. Find your ideal daily calorie level. Place a check mark next to the level that is right for you.

   ☑ **NOTE:** These levels are recommended by the National Academy of Sciences and are also based on responses to national food consumption surveys.

   _______ 1,600 calories is about right for many sedentary women and some older adults.

   _______ 2,200 calories is about right for most children, teenage girls, active women, and many sedentary men. Women who are pregnant or breastfeeding may need somewhat more.

   _______ 2,800 calories is about right for teenage boys, many active men, and some very active women.

2. Calculate the total number of calories you consumed each day (from your food diary).

   Day 1 (Total): ____________ Day 5 (Total): ____________

   Day 2 (Total): ____________ Day 6 (Total): ____________

   Day 3 (Total): ____________ Day 7 (Total): ____________

   Day 4 (Total): ____________

3. Did you consume the needed amount of calories each day?

____

4. What could result from continuing this caloric intake for an extended period of time? Would you gain weight, lose weight, or keep the same weight? Why?

____

ASSIGNMENT SHEET 2

EXAMINING FOOD, NUTRIENTS, AND THE BODY

2

Name ______________________________ Score __________

OBJECTIVE 12

Test for carbohydrates in food.

EQUIPMENT AND SUPPLIES

- Aluminum foil, heavy duty
- Scissors
- Eyedropper
- Potassium iodine/ iodine solution
- Food samples
- Benedict's solution
- Heat source
- Test tubes (or baby food jars, custard dishes, etc.)
- Rubber gloves
- Pencil
- Paper

⚠ **CAUTION:** When using iodine and Benedict's solution, wear rubber gloves and handle carefully to avoid stains. Do not eat food that is being chemically tested.

INSTRUCTIONS

- Follow written instructions
- Take notes
- Complete forms and records
- Make measurements

Part 1

To detect starch:

1. Cut aluminum foil into 4-inch squares. Lay the squares on a table.
2. Place a small quantity of food on each square. Label each square with the name of the food (one food per square).
3. Fill an eyedropper with the iodine test solution. Place one drop of the iodine onto each of the samples.
4. Record your results on the form provided in the "STARCH TEST" column.
5. Wash, rinse, and put away eyedroppers. Dispose of food samples and aluminum squares. Clean your work area.

- Conduct experiments
- Use scientific instruments

- Collect/record information
- Draw conclusions

6. If a blue-black (purple) color indicates the presence of starch, which of the food samples contained starch?

____

____

____

____

Part 2

To detect simple sugar:

1. Put a small amount of the food sample in a test tube.
2. Add 1 ounce of Benedict's solution (blue in color).
3. Heat the test tube. (Do not over-heat the glass test tube or place it over an open flame.)
4. Record your results on the form provided in the "SIMPLE SUGAR TEST" column.
5. Dispose of used food samples. Wash, rinse, and put away all test tubes. Clean your work area.
6. If a red-orange color indicates the presence of sugar, which food samples contained sugar?

____

____

____

____

CARBOHYDRATES TEST RECORD

FOOD SAMPLES	TEST RESULTS	
	STARCH TEST	SIMPLE SUGAR TEST
1.		
2.		
3.		
4.		

ASSIGNMENT SHEET 3

EXAMINING FOOD, NUTRIENTS, AND THE BODY

2

Name ______________________________ Score __________

OBJECTIVE 15

Test for the presence of fats in foods.

EQUIPMENT AND SUPPLIES

- Brown paper
- Scissors
- Cutting board
- Knife
- Food samples
- Pencil
- Paper

INSTRUCTIONS

- Follow written instructions
- Take notes
- Complete forms and records
- Conduct experiments
- Use scientific instruments
- Collect/record information
- Draw conclusions

1. Cut the brown paper into 4-inch squares (one square for each food sample to be tested).
2. Place or rub a small amount of each food on a square.
3. Label each square with the name of the food it contains.
4. Indicate the test results you expect for each food. State your expected results on the form provided.
5. Remove the food from the squares and discard.
6. Wait 10 minutes, then examine each square by holding it up to a light source.
7. On the form provided, record the results as positive (fat present) or negative (no fat present) next to your expected results.
8. Discard paper squares and clean your work area.

FATS TEST RECORD

RESULTS	
EXPECTED	**ACTUAL (+ OR −)**
1. ____________________	1. ____________________
2. ____________________	2. ____________________
3. ____________________	3. ____________________
4. ____________________	4. ____________________
5. ____________________	5. ____________________
6. ____________________	6. ____________________
7. ____________________	7. ____________________
8. ____________________	8. ____________________
9. ____________________	9. ____________________
10. ____________________	10. ____________________

ASSIGNMENT SHEET 4

EXAMINING FOOD, NUTRIENTS, AND THE BODY

2

Name ______________________ Score __________

OBJECTIVE 18

Analyze the solubility of vitamins.

EQUIPMENT AND SUPPLIES

- Vitamin supplement tablets (not time-release type)

  EXAMPLE: multi-vitamin, vitamin E, vitamin C, vitamin B, calcium

- White vinegar
- Clear containers
- Paper
- Pencil

INSTRUCTIONS

- Follow written instructions
- Take notes
- Complete forms and records
- Conduct experiments
- Use scientific instruments
- Investigate/apply principles of anatomy/physiology

1. Read the contents label of the vitamin package. On the form provided, record the name and percentage of the vitamin in each tablet.

2. Pour the white vinegar into the containers (one container for each vitamin supplement tablet).

   ☑ **NOTE:** White vinegar has approximately the same acidity as your stomach.

3. Put one vitamin into each container. Label each container as you proceed.

4. Observe your containers at the following time intervals:

   3 Minutes, 5 Minutes, 10 Minutes, 15 Minutes

5. On the form provided, record your observations and describe how each tablet dissolves (chunky, gaseous or fizzy, milky, quickly, slowly, etc.).

- Collect/record information
- Draw conclusions

6. Answer the following questions:

   a. Which dissolves the most thoroughly?

   ____

   b. Which dissolves the least thoroughly?

   ____

   c. Which dissolves the quickest?

   ____

   d. Which dissolves the slowest?

   ____

   e. What have you learned about the digestive process? How do you think these tablets would digest in your stomach?

   ____

   ____

   ____

VITAMIN SOLUBILITY RECORD

VITAMIN	%	RESULTS			
		3 MIN	5 MIN	10 MIN	15 MIN
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

ASSIGNMENT SHEET 5

EXAMINING FOOD, NUTRIENTS, AND THE BODY

2

Name ______________________________ Score __________

OBJECTIVE 21

Evaluate the nutritional qualities of a recipe from another country or culture.

EQUIPMENT AND SUPPLIES

- Resources in library or class
- Pencil or pen
- Cookbook or personal recipe

INSTRUCTIONS

- Follow written instructions
- State ideas clearly
- Use complete sentences
- Complete forms and records
- Collect/record information
- Draw conclusions

- Select a recipe that originated in an ethnic culture or country other than the United States. Attach a copy of the recipe.
- Answer the following questions:

1. Which nutrients are included in the recipe? List in order of ingredients. Complete the form provided.
2. Why do you think these particular ingredients were used together?

   ____

   ____

   ____

3. Which vitamins and minerals do the ingredients provide? Complete the form provided.
4. Does the recipe contain a higher percentage of a particular nutrient?

   ____

   ____

   ____

5. How would you evaluate the nutritional qualities of this recipe? Please explain.

____

____

____

6. Would you consider this recipe nutrient-dense? Why or why not?

____

____

____

____

RECIPE: ____________________

COUNTRY/CULTURE: ____________________

INGREDIENTS	NUTRIENTS	VITAMINS/MINERALS
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		

OBJECTIVE SHEET

HANDLING AND STORING FOOD

3

INTRODUCTION

Feeding the population of the United States is an enormous task. It requires the work of producers (such as farmers and ranchers), transport workers (by land, sea, and air), and processors. The food must be prepared, processed, preserved and packaged before it is offered to consumers on a supermarket shelf or on a menu. It may have traveled over long distances for long periods of time while being handled by many people before the food finally reaches you. Government and private agencies monitor and enforce health safety standards. However, you must also protect yourself by understanding food safety risks and learning how to handle them. Equally important is your safety while working in a kitchen or food laboratory. Of all the accidents that occur in the home every year, more occur in the kitchen than any other place. Safe practices and well-designed kitchens can help you avoid many potential dangers.

FOCUS ASSIGNMENTS

Reading Comprehension
- Gain factual information
- Analyze cause and effect
- Draw conclusions

Language
- Use standard grammar, spelling, and capitalization
- State ideas clearly

Composition
- Use complete sentences

FOCUS ASSIGNMENTS	
PREREADING:	Read the Handout "Effect of Light on Milk." While you are reading, think about how milk is packaged. Identify other familiar products and the possible reasons for their packaging.
WRITING:	Write a half-page paper about your ideas on the effects of packaging on milk and other familiar products.

UNIT OBJECTIVE

After completing this unit, you will show the following competencies by mastering the activities on the Assignment Sheets and by scoring at least 85% on the Written Test.

SPECIFIC OBJECTIVES

1. Distinguish among the causes of food spoilage.
2. State factors affecting the shelf life of food products.
3. Distinguish among the types of open dating.
4. Match types of foods to their correct storage method.
5. State guidelines for storing foods.
6. Interpret a food spoilage experiment. (Assignment Sheet 1)
7. State factors contributing to food-borne illnesses.
8. Match common food-borne illnesses to their descriptions.
9. Select from a list guidelines for maintaining kitchen safety, sanitation, and efficiency.
10. Select from a list proper food handling and personal sanitation practices.
11. Demonstrate the importance of proper food handling using gelatin cultures. (Assignment Sheet 2)
12. Research a food-borne illness. (Assignment Sheet 3)
13. List factors influencing food packaging requirements.
14. Investigate trends and technologies in food packaging and storage. (Assignment Sheet 4)

INFORMATION SHEET

HANDLING AND STORING FOOD

3

OBJECTIVE 1

Required Activities/ Resources
- Transparency Masters 1 and 2

Optional Activities/ Resources in Instructor's Guide

Distinguish among the causes of food spoilage.

Discuss the question "How does food spoil?"

WORDS YOU SHOULD KNOW	
microorganism	tiny living organisms that can only be seen with a microscope; always present in air, water, and soil; require food, moisture, warmth, appropriate light, oxygen, and favorable surroundings; include bacteria, yeasts, and molds

☑ **NOTE:** Most foods contain microorganisms. Problems occur when the growth of these microorganisms is not controlled.

- **Bacteria**
  - One-celled microorganisms
  - Prefer protein foods and rich foods
  - Give off waste products called toxins which may be poisonous
  - Multiply rapidly by dividing in half
  - Most grow best at temperatures from 68°F to 100°F

  ☑ **NOTE:** Bacteria may also be beneficial; they are used in making buttermilk and sauerkraut.

- **Molds**
  - Microorganisms that grow as a fluffy, fuzzy patch on food
  - Microscopic plant
  - Cause unpleasant odor and flavor
  - May grow in the refrigerator; easily destroyed by boiling

  ☑ **NOTE:** Molds are also used in curing cheeses such as Roquefort and blue cheese.

- **Yeast**
  - ☐ Microorganisms that are difficult to detect
  - ☐ One-celled plant or fungi
  - ☐ Causes some foods to ferment
  - ☐ Multiply by sending out buds
  - ☐ Easily destroyed by boiling

  ☑ **NOTE:** Yeast can also be beneficial; it is used in bread making.

- **Enzyme action**
  - ☐ Causes fruits and vegetables to ripen even after picking
  - ☐ May cause over-ripening and spoilage
  - ☐ Continual action in animal products causes food to deteriorate
  - ☐ Softens the texture, changes the color, and impairs the flavor

  ☑ **NOTE:** Temperature affects the growth of microorganisms and enzyme action. Temperature control is important in the prevention of food spoilage.

OBJECTIVE 2

Optional Activities/
Resources in
Instructor's Guide

State factors affecting the shelf life of food products.

Discuss the question "What factors affect the shelf life of food?"

WORDS YOU SHOULD KNOW	
irradiation	exposing food to gamma radiation to extend the food's shelf life
shelf life	length of time a food remains fresh

- **Additives** – Used to improve and protect the flavor of food

  EXAMPLE: Preservatives such as antioxidants, inhibitors, and fungicides, thickening agents, and stabilizers

- **Storage methods** – Used to keep foods fresh and prevent spoilage

  EXAMPLE: Freezing, refrigeration, dry storage

- **Packaging** – Protects product from light, air (oxygen), moisture, and heat

- **Time** – The longer the food is kept before being consumed, the more nutrients it loses

- **Damage** – Damage to food such as bruises and cuts shortens the shelf life

- **Heat** – Causes processed foods to lose quality and nutrients more quickly

- **Processing and preserving** – Dehydration, canning, irradiation, drying, freezing, smoking

OBJECTIVE 3

Optional Activities/
Resources in
Instructor's Guide

Distinguish among the types of open dating.

? Discuss the question "What is open dating and why is it helpful to the consumer?"

WORDS YOU SHOULD KNOW	
open dating	dates that manufacturers put on food packaging to help consumers get food that is fresh and wholesome; not regulated by the government so it is not on all packages

- **Pack date**
  - ☐ Day the food was processed or packaged
  - ☐ Tells how old the food is when you buy it
  - ☐ Usually used on products with a long shelf life
- **Pull date**
  - ☐ Follows the words "sell by"
  - ☐ The last day a store can sell the item as fresh

  - Allows for some storage time in the home refrigerator

    EXAMPLE: Ice cream, milk, and bread

- **Expiration date** – The last date the food should be used

  EXAMPLE: Baby formula and yeast

- **Quality assurance date**
  - Followed by the words "best if used by"
  - Does not mean the product cannot be used after that date

    EXAMPLE: Cookies, cake mixes, packaged cereals

OBJECTIVE 4

Required Activities/
Resources
– Discussion

Optional Activities/
Resources in
Instructor's Guide

Match types of foods to their correct storage method.

Discuss the question "What methods are correct for storing different types of food?"

- **Dry storage (a dry, dark, cool place)**
  - Unopened cans, jars, and bottles that do not require refrigeration
  - Packaged food such as grain products, dried beans, and peas
  - Seasonings and sweeteners
  - Onions, potatoes, and unripe fruit
- **Refrigerator storage**
  - Perishable foods such as fresh ripe fruits and most vegetables
  - Dairy products and eggs
  - Fresh and cured meats, poultry, and fish
  - Cooked foods (tightly sealed)
  - Unused portions of canned food (transfer to sealed container)
  - Peanut butter and cooking and salad oils for long-term storage

  - ☐ Grain products that are to be kept more than 2 months

- **Freezer storage**

  - ☐ Store-bought frozen products

    ☑ **NOTE:** Store groceries properly and as soon as possible. Do not leave them in a warm car or on your counter at home for very long.

  - ☐ Fresh meat, poultry, and fish that must be kept longer than a few days

  - ☐ Butter for long-term storage (longer than 2 weeks)

  - ☐ Fresh produce to be used in the future

  - ☐ Home-cooked food to be used in the future

OBJECTIVE 5

Optional Activities/
Resources in
Instructor's Guide

State guidelines for storing foods.

- **Dry storage**

  - ☐ Maintain a temperature range of 55°F to 70°F.

  - ☐ Reseal opened packages or store in tightly sealed containers.

  - ☐ Never store food near chemicals.

    ☑ **NOTE:** If space is limited, keep foods and chemicals separate. Store foods above chemicals.

  - ☐ Do not store food under sinks.

    ☑ **NOTE:** This will protect foods from possible water leakage.

- **Refrigerator storage**

  - ☐ Maintain a temperature range of 36°F to 40°F.

  - ☐ Store fresh uncooked meats loosely.

    ☑ **NOTE:** This allows the surface to dry out so bacteria will not grow.

  - ☐ Wash and sort fruits and vegetables before storing.

- ☐ Wash berries right before eating.
- ☐ Store produce in tightly sealed plastic bags or a crisper.
- ☐ Use meat, produce, and leftovers within 3 to 5 days.
- ☐ Use fish, poultry, and hamburger within 1 to 2 days.

- **Freezer storage**
  - ☐ Maintain a temperature range of 0°F or lower.
  - ☐ Store food in moisture- or vapor-proof wrap or original container.
  - ☐ Blanch fresh vegetables to stop enzyme action.
  - ☐ Use sugar, lemon juice, or ascorbic acid to prevent fruits from discoloring.
  - ☐ Leave 1 inch of head space at the top of containers.

    ☑ **NOTE:** This will allow for expansion when freezing so the seal or the container will not break.
  - ☐ Squeeze all air out of packages when wrapping.

    ☑ **NOTE:** This will keep food from drying out or losing nutrients.
  - ☐ Date and label all containers and packages with the food name, portion size, and whether it is cooked or raw.
  - ☐ Keep an inventory of freezer contents.

OBJECTIVE 6 **Complete Assignment Sheet 1.**

OBJECTIVE 7

Required Activities/ Resources
– Transparency Master 3

Optional Activities/ Resources in Instructor's Guide

State factors contributing to food-borne illnesses.

Discuss the question "How do we get food-borne illnesses?"

WORDS YOU SHOULD KNOW	
cross contamination	transfer of harmful microorganisms from one food to another by means of a non-food item EXAMPLE: Hands, utensils, cutting boards

- **Rodents and insects**
  - Failure to eliminate breeding or entry areas for pests
  - Failure to discard spoiled food and trash
- **Improper food preparation**
  - Unnecessary use of hands during preparation
  - Thawing frozen food at room temperature

    ☑ **NOTE:** You may thaw frozen foods under refrigeration or under cold, running water.
  - Serving partially cooked foods
  - Cross contamination
- **Improper food storage**
  - Failure to keep hot foods hot and cold foods cold
  - Uncovered food left out
  - Raw foods stored in direct contact with shelves or other food
  - Failure to reheat foods to safe internal temperatures
  - Slow cooling of foods

    ☑ **NOTE:** Place hot foods in a shallow container in the refrigerator. Stir hot liquids to reduce their cooling time.
  - Improper temperature in refrigerator or freezer

☐ Failure to discard damaged food containers

☑ **NOTE:** Follow the time and temperature rule "2-40°F-140°F". Don't leave food out over 2 hours if between 40°F and 140°F.

- **Poor personal hygiene**
  - ☐ Infected sores or boils
  - ☐ Respiratory illness
  - ☐ Unclean hands and clothes
  - ☐ Diarrhea
- **Unsanitary kitchen**
  - ☐ Improper cleaning
  - ☐ Unsanitary tools and equipment
  - ☐ Garbage build-up

☑ **NOTE:** Using hot, soapy water is important because it helps to eliminate harmful bacteria that can contaminate food.

OBJECTIVE 8

Optional Activities/
Resources in
Instructor's Guide

Match common food-borne illnesses to their descriptions.

WORDS YOU SHOULD KNOW	
food-borne illness	illness transmitted to human beings through food, caused by either poisonous bacterial wastes or some types of microorganisms or parasites
toxin	waste product from bacteria; often poisonous

- **botulism (BAH-choo-lism)** – onset 4 to 36 hours after eating; caused by eating toxin-contaminated food such as canned corn, beans, soups, asparagus, tuna, chicken, and other low-acid foods
- **giardiasis** – onset 8 to 12 hours after eating; caused by drinking contaminated water or eating uncooked food

- **infectious hepatitis** – onset from 3 to 6 weeks; a viral disease carried in contaminated water and sewage; caused by eating raw or under cooked contaminated shellfish such as oysters and clams

- **Perfringen (pur-FRIN-jen) poisoning** – onset 8 to 12 hours after eating; caused by eating contaminated food such as meats and meat products stored between 120°F and 130°F; likely when large amounts of food are handled improperly

- **Salmonellosis** – onset 2 to 48 hours after eating; caused by contact with a carrier eating contaminated food such as raw meats, poultry, milk, and other dairy products, yeast, coconut, and chocolate; carried by rodents, insects and pets such as turtles, birds, dogs, and cats

- **staphylococcal (staff-ih-lo-KOK-uhl) poisoning** – onset 1/2 to 8 hours after eating; caused by eating toxin-contaminated food such as meats, poultry, egg products, tuna, potato and macaroni salads, and creme-filled pastries; transmitted by food handlers who carry the bacteria

- **trichinosis (TRIK-uh-NO-sus)** – caused by a parasitic round worm that can be found in uncooked pork

OBJECTIVE 9

Select from a list guidelines for maintaining kitchen safety, sanitation, and efficiency.

Required Activities/
Resources
– Transparency
Masters 4 and 5
– Discussion

Optional Activities/
Resources in
Instructor's Guide

WORDS YOU SHOULD KNOW	
grounding	providing a path for electricity to travel if the wiring is damaged or faulty
work flow	the general procedure of food preparation; take food from the refrigerator, freezer, or cabinet, clean it, prepare it, cook it, and serve it.
work triangle	an arrangement where the three work centers (range, refrigerator, and sink) form the points of an imaginary triangle. The distance of the three sides of the triangle combined should be no more than 22 feet.

- **Preventing falls**
  - ☐ Use a sturdy ladder or step stool when reaching.

  - ☐ Keep kitchen floors clean and dry.

- **Preventing cuts**

  - ☐ Keep knives sharp.

    ☑ **NOTE:** Sharp knives are safer than dull ones.

  - ☐ Slant blade away from you while cutting.

  - ☐ Always use a cutting board.

  - ☐ Store and wash knives separately.

    ☑ **NOTE:** Never store knives loosely in a drawer.

  - ☐ Keep fingers away from appliance blades.

  - ☐ Use a disposable towel to pick up broken glass.

    ☑ **NOTE:** A damp disposable towel can help you pick up small pieces of glass.

  - ☐ Cut can lids completely off and discard.

- **Preventing fires and burns**

  - ☐ Keep flammable materials away from the range top.

  - ☐ Avoid wearing loose garments and long sleeves while cooking.

  - ☐ Do not store flammable substances near a heat source.

    EXAMPLE: Cleaning fluids, aerosol sprays

  - ☐ Keep handles of pans turned away from outside edges of the range.

  - ☐ Clean grease build-up from range and exhaust hood frequently.

  - ☐ Open lids of pots and pans away from you.

    ☑ **NOTE:** This will help prevent steam from burning you.

  - ☐ Use dry potholders.

    ☑ **NOTE:** Wet potholders carry heat and may cause steam burns.

- **Preventing choking**
    - Eat food slowly and in small portions.
    - Chew food thoroughly.
    - Do not talk with food in your mouth.
- **Preventing poisoning**
    - Keep poisonous substances in their original containers.

      ☑ **NOTE:** Do not re-use containers.
    - Clean up spills of hazardous material quickly.
    - Do not store poisonous substances with food.
- **Preventing electric shock**
    - Disconnect portable appliances when not in use.

      EXAMPLE: Toaster, coffee maker
    - Do not use appliances with damaged electrical cords.
    - Pull the plug (not the cord) to disconnect appliances.
    - Always disconnect appliances before cleaning them.
    - Do not use appliances near water, when your hands are wet, or when you are standing on a damp surface.
- **Maintaining kitchen sanitation**
    - Wash counter tops, tables, and all other work surfaces before and after food preparation.
    - Keep work surfaces and utensils clean while you are working.
    - Clean up spills immediately.
    - Always use hot, soapy water when cleaning.
    - Wash pots, pans, and dishes as soon as possible.
    - Wash anything that has come in contact with raw foods before using them on cooked food.

  - Use separate towels for dishes and hands.
  - Dispose of food scraps properly.

- **Maintaining kitchen efficiency**
  - Use the work triangle to optimize work flow.
  - Provide a minimum of 150 watts incandescent or 80 watts fluorescent lighting for overall room lighting.
  - Provide task lighting over counters, sinks, and range.
  - Maintain adequate counter and storage space.
  - Supplement existing storage with stackable bins, turntables, and pegboard.
  - Use skid-proof and washable floor coverings.
  - Have a licensed electrician check and update electrical power requirements.
  - Ground all kitchen outlets.

OBJECTIVE 10

Optional Activities/
Resources in
Instructor's Guide

Select from a list proper food handling and personal sanitation practices.

Discuss the question "What practices are considered sanitary for the kitchen?"

- **Sanitary food handling practices**
  - Keep hot foods hot (above 140°F) and cold foods cold (below 40°).

    ☑ **NOTE:** The danger zone is between 40°F and 140°F.
  - Keep refrigerator and freezer clean.
  - Thaw foods in the refrigerator, not at room temperature.
  - Refrigerate leftovers quickly, in airtight containers, and reheat to a least 165°F.
  - Refrigerate meringue, cream pies, and foods containing custards as soon as they have cooled slightly.

- Stuff raw poultry and fish just before baking. Remove stuffing promptly and refrigerate it separately.
- Do not partially cook meat, poultry, or fish and then continue cooking the next day.
- Dispose of any bulging, leaking, or rusting container of canned food.
- Do not taste any food that looks questionable.

  ☑ **NOTE:** Throw any questionable food away.

- Do not refreeze foods unless they still have ice crystals. Use defrosted foods promptly.

  ☑ **NOTE:** If a food is defrosted, you may cook it and refreeze it.

- Wash all surfaces that have come in contact with raw meat, poultry, or fish.

Personal sanitation practices

- Keep your hands and fingernails clean.
- Do not touch your hair or face while working in the kitchen.
- Use separate towels for wiping hands and dishes.
- Use plastic gloves if you have an open sore on your hands.
- Tie your hair back or cover it with a hair net.
- Wear clean clothes and an apron.
- Use a tasting spoon only once; wash it before re-using it.
- Do not use utensils or towels that have fallen on the floor.
- Keep pets out of the kitchen.
- Do not touch the eating surface of plates, flatware, or glasses.
- Do not smoke or eat while preparing food.
- Wash hands with hot, soapy water after handling raw meat.

OBJECTIVE 11 **Complete Assignment Sheet 2.**

OBJECTIVE 12 **Complete Assignment Sheet 3.**

OBJECTIVE 13 **List factors influencing food packaging requirements.**

Required Activities/
Resources
– Transparency Master 6

Optional Activities/
Resources in
Instructor's Guide

Discuss the question "Why do different foods require different types of packages?"

- Convenience in handling, storage, and use

  EXAMPLE: Squeezable containers dispense just the right amount of a product.

- Desired shelf life

  EXAMPLE: Canned food usually has a longer shelf life than frozen food.

- Flexibility
- Perishability
- Preservation of food quality, shape, and texture
- Prevention of deterioration due to contact with oxygen, light, heat, and moisture
- Price

  NOTE: Elaborate packaging may be eliminated in order to reduce the cost of a product.

- Protection against contamination
- Protection against physical damage during transportation and handling
- Size, shape, and weight of the product
- Type of storage needed

  EXAMPLE: Frozen, refrigerated, or dry storage

OBJECTIVE 14 **Complete Assignment Sheet 4.**

ASSIGNMENT SHEET 1

HANDLING AND STORING FOOD

Name ______________________________ Score __________

OBJECTIVE 6

Interpret a food spoilage experiment.

EQUIPMENT AND SUPPLIES

- Petri dishes: 12 per group
- Labels and permanent marker
- Bread: two slices, white
- Knife
- Cutting board
- Water
- One food item your group would like to test (lettuce, french fry, cheese, etc.)

INSTRUCTIONS

- Follow written instructions

- Use standard grammar, spelling, and capitalization
- State ideas clearly
- Use complete sentences
- Take notes
- Complete forms and records

- Conduct experiments
- Use scientific instruments
- Investigate health issues

Part 1

1. Cut the bread slices into 6 pieces.

2. Place each piece of bread in a separate petri dish.

3. Immediately place the lid on each petri dish.

   ☑ **NOTE:** Do not remove the lids from the petri dishes. This will ruin the experiment.

4. Label 3 petri dishes "WET" and 3 petri dishes "DRY."

5. Place the "DRY" petri dishes in the following locations: refrigerator, cabinet, and window sill.

6. Remove the lid of the "WET" petri dishes and thoroughly dampen the bread in each dish with water.

7. Immediately replace the lid on each "WET" petri dish.

8. Place the "WET" petri dishes in the same locations: refrigerator, cabinet, and window sill.

   ☑ **NOTE:** Do not remove the lids from the petri dishes. This will ruin the experiment.

- Work effectively in a group
- Participate in group activities
- Collect/record information
- Analyze/synthesize information
- Draw conclusions

9. Observe the experiment daily and record your findings on the chart provided.

   ☑ **NOTE:** Even though you are working as a group, you must complete your own chart.

10. After you have finished the experiment:

    a. Dispose of the bread according to your instructor's directions.
    b. Wash the petri dishes with hot, soapy water, then rinse them.
    c. Sterilize the petri dishes according to your instructor's directions.
    d. Dry and store the dishes.

11. After you have finished the experiment, answer the following questions:

    a. What did you observe take place over the 6-day period:

    in the samples stored in the refrigerator?

    ____

    ____

    in the samples stored in the cabinet?

    ____

    ____

    in the samples stored on the window sill?

    ____

    ____

    b. Did it make a difference where the samples were stored? Please explain.

    ____

    ____

c. Did it make a difference whether the sample was wet or dry? Please explain.

d. What would be the best place to store bread? Why?

Part 2

1. Repeat steps 1-10 (in Part 1) for a new food item. Your group should have chosen a food item to test (not bread).
2. After you have finished the experiment, answer the following questions:

    a. What did you observe take place over the 6-day period:

    in the samples stored in the refrigerator?

    in the samples stored in the cabinet?

    in the samples stored on the window sill?

    b. Did it make a difference where the samples were stored? Please explain.

c. Did it make a difference whether the sample was wet or dry? Please explain.

____

____

d. What would be the best place to store this food? Why?

____

____

FOOD SPOILAGE DATA SHEET

		BREAD						Recommended Storage
		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	
Refrigerator	Wet							
	Dry							
Kitchen Cabinet	Wet							
	Dry							
Window Sill	Wet							
	Dry							

FOOD SPOILAGE DATA SHEET

		FOOD ITEM ________________ (fill in)						Recommended Storage
		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	
Refrigerator	Wet							
	Dry							
Kitchen Cabinet	Wet							
	Dry							
Window Sill	Wet							
	Dry							

ASSIGNMENT SHEET 2

HANDLING AND STORING FOOD

3

Name ______________________________ Score __________

OBJECTIVE 11

Demonstrate the importance of proper food handling using gelatin cultures.

EQUIPMENT AND SUPPLIES

- Petri dishes: 5 per group
- Gelatin (unflavored)
- Labels and permanent marker

INSTRUCTIONS

- Follow written instructions

- Use standard grammar, spelling, and capitalization
- State ideas clearly
- Use complete sentences
- Take notes

- Conduct experiments
- Use scientific instruments
- Investigate health issues

- Work effectively in a group

1. Obtain 5 petri dishes containing gelatin from your instructor.
2. Have three people from your group gently touch the surface of the gelatin in the petri dish with each of the fingertips on one hand. Replace the lid immediately (to avoid unnecessary contamination from the surrounding air). Label the petri dish "fingers."
3. Have one person from your group wipe the top of the kitchen lab counter with a dry paper towel. Gently touch the exposed towel to the surface of the gelatin. Replace the lid immediately. Label the petri dish "countertop."
4. Have one person from your group wipe the floor with a dry paper towel. Gently touch the exposed towel to the surface of the petri dish. Replace the lid immediately. Label the petri dish "floor."
5. Have three people from your group place a loose hair on the gelatin. Press the hair down until it is in full contact with the gelatin. Replace the lid immediately. Label the petri dish "hair."
6. Place the petri dishes on a table, cabinet, or shelf where your group can observe them every day. Tape the lids on the dishes.
7. Allow 5-10 days for the growth of the microorganisms to occur. During this time, DO NOT remove the lids of the petri dishes for observation. This will ruin the experiment.
8. Each day in class, check the petri dishes and record any change in the gelatin. Make your observations as best as you

- Collect/record information
- Analyze/synthesize information
- Draw conclusions

can without removing the lid of the petri dish.

9. At the end of the experiment, describe and record your observations from each petri dish on the form provided. Discuss the results of the experiment with your group and with the class.

10. Record class conclusions and answer the questions on the form.

11. After you have finished the experiment:

    a. Dispose of the gelatin according to your instructor's directions.
    b. Wash the petri dishes with hot, soapy water, then rinse them.
    c. Sterilize the petri dishes according to your instructor's directions.
    d. Dry and store the dishes.

12. After you have finished the experiment, answer the following questions:

    a. Which experimental condition was generally the most favorable for the growth of bacteria?

    ____

    ____

    b. What measures would you recommend be taken in a kitchen to help control the conditions that encourage bacteria growth?

    ____

    ____

    c. What have you learned?

    ____

    ____

    ____

BACTERIAL CULTURE DATA SHEET

PETRI DISH	COLOR OF MOLD	GROWTH PATTERN	OTHER	CONCLUSION
FINGERS				
COUNTERTOP				
FLOOR				
HAIR				

ASSIGNMENT SHEET 3

HANDLING AND STORING FOOD

3

Name ______________________ Score __________

OBJECTIVE 12

Research a food-borne illness.

EQUIPMENT AND SUPPLIES

- Classroom research resources
- Library resources
- Current magazines and newspapers
- Paper
- Pen or pencil

INSTRUCTIONS

1. Research articles in magazines, trade journals, and textbooks on a food-borne illness.
2. Include in your report the cause, food sources, symptoms, and ways to prevent the illness.
3. Write a two-page report on your research.
4. Give a five-minute oral report to the class over your topic. Your instructor will review the guidelines for delivering oral reports.

- Gain factual information
- Select useful resources
- Locate resources
- Find materials in library
- Use standard references
- Use magazines and newspapers
- Follow written instructions

- Use standard grammar, spelling, and capitalization
- State ideas clearly
- Use complete sentences
- Use topic sentences
- Use introductory/closing paragraphs
- Compose reports

- Investigate health issues

- Make informative presentations
- Use good speaking techniques
- Select/use words effectively
- Use effective body language
- Present appropriate appearance

- Practice good personal presentation

ASSIGNMENT SHEET 4

HANDLING AND STORING FOOD

Name ______________________________ Score __________

OBJECTIVE 14

Investigate trends and technologies in food packaging and storage.

EQUIPMENT AND SUPPLIES

- Paper
- Pen or pencil

INSTRUCTIONS

- Follow written instructions
- Use content area vocabulary

- Use standard grammar, spelling, and capitalization
- State ideas clearly
- Use complete sentences

- Make informative presentations
- Use good speaking techniques
- Select/use words effectively
- Use effective body language
- Present appropriate appearance

1. Choose a packaged food product. Give at least three (3) reasons for the packaging used with this product.

   Product: ______________________________

   Packaging: ______________________________

   ____

   ____

   ____

   ____

   ____

2. Create a new food product, then design an appropriate package for it. (You do not have to make the food product.) Describe your product and its package:

   Product: ______________________________

   ____

   Package: ______________________________

   ____

   ____

   ____

3. Describe your product and package in a brief oral report to the class.

OBJECTIVE SHEET

USING RECIPES

4

INTRODUCTION

Recipes take the uncertainty out of preparing dishes. A recipe is your guide to help you prepare a dish; if followed properly, it will ensure success each time. Many people take pride in their food creations and their recipes often become family heirlooms handed down from generation to generation. To understand recipes and to save time, a good cook should become familiar with the terms, abbreviations, and forms of measurements used in cooking. Seasonings can also help you be as creative as possible, allowing you to change the color, flavor, aroma, and texture of many foods. Whether you are cooking for one or one hundred, accuracy and consistency during cooking are the keys to creating many delicious dishes.

FOCUS ASSIGNMENTS

Reading Comprehension
- Gain factual information
- Analyze cause and effect
- Draw conclusions

Language
- Use standard grammar, spelling, and capitalization
- State ideas clearly

Composition
- Use complete sentences

FOCUS ASSIGNMENTS

PREREADING:	Collect and read recipes from friends, magazines, newspapers, or other sources. Start thinking about how well the recipes are written and if they provide all of the information you need.
WRITING:	Rewrite one recipe in your own words.

UNIT OBJECTIVE

After completing this unit, you will show the following competencies by mastering the activities on the Assignment Sheets and by scoring at least 85% on the Written Test.

SPECIFIC OBJECTIVES

1. Define the elements of a recipe.
2. Recognize measurements used in recipes by their definitions.
3. State abbreviations commonly used in recipes.
4. Apply recipe math. (Assignment Sheet 1)
5. State principles for modifying a recipe.
6. Modify a recipe. (Assignment Sheet 2)
7. Solve problems involving ingredient alternatives. (Assignment Sheet 3)
8. Discuss the uses of spices, herbs, and garnishes.
9. Determine spice alternatives. (Assignment Sheet 4)
10. Select appropriate fats and oils for specific purposes.
11. Define a time-work plan.
12. Prepare a time-work plan. (Assignment Sheet 5)

INFORMATION SHEET

USING RECIPES

4

OBJECTIVE 1

Optional Activities/ Resources in Instructor's Guide

Define the elements of a recipe.

- **Cooking time** – length of time for food to reach its desired condition
- **Directions** – ordered, step-by-step procedure for combining and handling the ingredients; may include presentation instructions
- **Equipment** – size and type of cookware needed
- **Ingredients** – list of the exact form of the ingredients required for recipe; usually listed in the order they are to be combined
- **Measurements** – identifies the quantities of the ingredients to be used; may be in metric or traditional form or both
- **Name** – identifies the product you are preparing
- **Temperature setting** – temperature at which food should be cooked; given in degrees Fahrenheit, Celsius, or the condition of the food (such as simmer or boil)
- **Yield** – the number of average servings the recipe will make

OBJECTIVE 2

Required Activities/
Resources
– Discussion

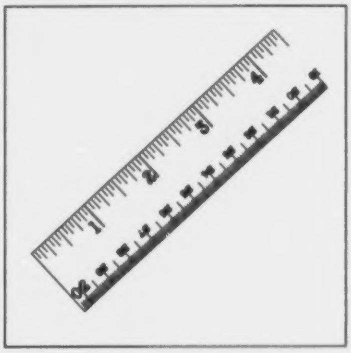
Optional Activities/
Resources in
Instructor's Guide

Recognize measurements used in recipes by their definitions.

WORDS YOU SHOULD KNOW	
metric measure	a system of measurement in which parts of the whole are calculated in decimals; used in most countries
standard (customary) measure	a system of measurement in which parts of the whole are calculated in fractions; used in the United States

- **length** – measures how long or wide something is; measured by inches and feet in the standard system and by millimeters or centimeters in the metric system (Figure 1)

FIGURE 1



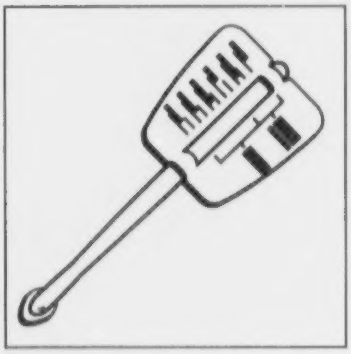
- **size** – measures how large or small a food ingredient or cooking utensil is

  EXAMPLE: large garlic clove, small mixing bowl

- **temperature** – measures how hot or cold something is; measured in degrees Fahrenheit (F) in the standard system and in degrees Celsius (C) in the metric system (Figure 2)

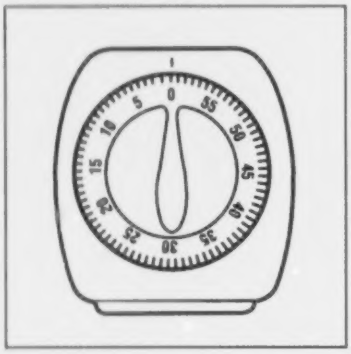
  ☑ **NOTE:** To convert degrees F to degrees C, use the formula: (tF-32) divided by 1.8 = tC.

FIGURE 2



- **time** – measures how long something takes to cook, cool, marinate, etc.; measured in seconds, minutes, or hours (Figure 3)

FIGURE 3



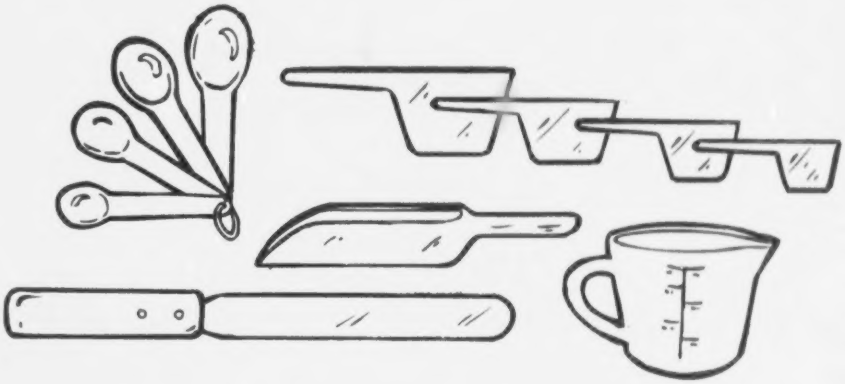
- **unit** – measures how many food items or cooking utensils are needed

  EXAMPLE: 1 dozen eggs, 3 lemons, 2 loaf pans

- **volume** – measures how much space an ingredient takes up; measured by teaspoons, tablespoons, fluid ounces, cups, pints, quarts, and gallons in the standard system and by deciliters, centiliters, milliliters, and liters in the metric system (Figure 4)

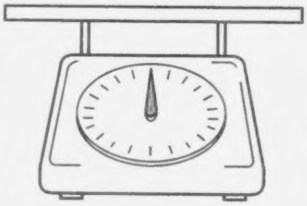
☑ **NOTE:** The term "ounces" is used as a weight and a volume. Be sure to know which meaning is appropriate for your recipe.

FIGURE 4



- **weight** – measures how heavy or light an ingredient is; measured by ounces and pounds in the standard system and by grams and kilograms in the metric system (Figure 5)

FIGURE 5



OBJECTIVE 3

State abbreviations commonly used in recipes.

Required Activities/
Resources
– Discussion

Optional Activities/
Resources in
Instructor's Guide

WORDS YOU SHOULD KNOW	
abbreviation	a shortened form of a word

Standard (customary) abbreviations

- **cup** – c
- **degrees Fahrenheit** – °F
- **dozen** – doz
- **gallon** – gal
- **hour** – hr
- **inch** – in
- **minute** – min
- **ounce** – oz
- **pint** – pt
- **pound** – lb
- **quart** – qt
- **second** – sec
- **square** – sq
- **tablespoon** – Tbsp or Tbs or T
- **teaspoon** – tsp or t

Metric abbreviations

- **centimeter** – cm
- **degrees Celsius** – °C
- **gram** – g

- **kilogram** – kg
- **liter** – L
- **milligram** – mg
- **milliliter** – mL
- **millimeter** – mm

☑ **NOTE:** Amounts less than 1/8 teaspoon are written in recipes using the terms "speck," "pinch," "fewgrains," or "dash."

OBJECTIVE 4

Complete Assignment Sheet 1.

OBJECTIVE 5

State principles for modifying a recipe.

Required Activities/
Resources
– Explanation

Optional Activities/
Resources in
Instructor's Guide

WORDS YOU SHOULD KNOW	
proportion	a ratio, scale, measure

- Calculate the new amount of each ingredient in the modified recipe. To do this, divide the desired yield by the original yield, then multiply the original amount of each ingredient by this number.

  EXAMPLE: If the original recipe yields four servings, but you need seven servings, divide seven by four. The result is 1 3/4. Multiply the amount of each ingredient in the original recipe by 1 3/4 (or 1.75) to find the amount of each ingredient for the modified recipe. This formula works whether you are increasing or decreasing a recipe.

- When decreasing a recipe, use a smaller pan and cook the food for a shorter time. When increasing a recipe, use a larger pan and cook the food for a longer time.

- Meat roasts do not decrease well; they tend to dry out and overcook easily.

- Breads, cookies, cakes, and other baked products usually require exact amounts of ingredients in relation to each other; decreasing the recipe is not recommended unless the recipe can be cut in halves or thirds exactly.

- To decrease 1 egg, beat up a whole egg and measure it with a measuring spoon into equal parts (1/2, 1/3 etc.).

- When decreasing a recipe, oven temperature will usually remain the same (but the baking time will be shorter).

- When measuring less than a cup, change the proportions to tablespoons.

- Some recipes, such as bread, require the use of a specified pan size. When increasing a recipe, you will need to use more pans of the same size.

- When increasing a recipe, an extra minute of beating is usually required.

OBJECTIVE 6 **Complete Assignment Sheet 2.**

OBJECTIVE 7 **Complete Assignment Sheet 3.**

OBJECTIVE 8 **Discuss the uses of spices, herbs, and garnishes.**

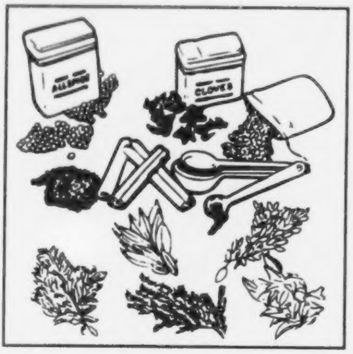
Required Activities/ Resources
– Sampling

Optional Activities/ Resources in Instructor's Guide

WORDS YOU SHOULD KNOW	
aromatic	having an aroma (a pleasing smell)
compatible	in agreement with; goes well with
complements	completes, supplements
detract	take away from
pungent	producing a sharp sense of taste and smell
savory	pleasing to the taste or smell

Spices and herbs (Figure 6)

FIGURE 6



- Spices are made from the root, seed, bark, flower, berry, or fruit of tropical vegetation; they usually add a pungent flavor. Herbs are the leaves of plants valued for their medicinal, savory, or aromatic properties. Spices and herbs are available in a variety of forms: whole, ground, cracked, rubbed, minced, flaked, and leaves.

- Spices add texture, color and flavor but have little or no nutritional value.

- Cooking increases the strength of the flavor in spices and herbs. They may become too strong and bitter during long, high-heat cooking.

☑ **NOTE:** "Spicy" is not necessarily hot. Pepper and ginger are the few spices that can produce a hot dish.

- Add dried seasonings during the last hour of cooking. Add whole spices at the start of cooking; they release flavor more slowly.

- Seasonings need more time to develop flavor in chilled, unmixed food; foods such as salad dressings and beverages should be made at least an hour in advance.

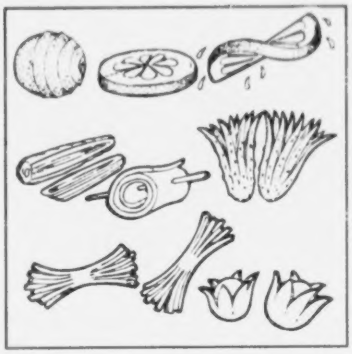
- Dried herbs are more concentrated than fresh herbs.

- Crushing releases the oils that hold an herb's flavor. Crushing herbs before adding them to food will increase their flavor.

- Some seasonings, such as salt, contribute more than just flavor to a recipe. For example, in baking bread, the salt controls the rate of yeast growth.

Garnishes (Figure 7)

FIGURE 7



- Garnishes add flavor, color, and texture to food.
- Garnishes should:
  - ☐ be edible and their flavor compatible with the food.
  - ☐ complement and enhance a food item.
  - ☐ give contrast without being excessive.
  - ☐ relate to the size of the food; if a garnish is too big, it may detract from the food.
  - ☐ be simple in design; complex garnishes may overpower the food.
- Slicing, carving and arranging bouquets of fruits and vegetables are techniques used for creating garnishes.

OBJECTIVE 9 **Complete Assignment Sheet 4.**

OBJECTIVE 10 **Select appropriate fats and oils for specific purposes.**

Optional Activities/
Resources in
Instructor's Guide

WORDS YOU SHOULD KNOW	
disperse	to break up and distribute widely
emulsion	dispersion of one liquid into another when the liquids ordinarily do not mix, such as oil and water
smoke point	the temperature at which fat begins to smoke. At the smoke point, a chemical breakdown takes place which forms substances that irritate the eyes and nostrils. Fat with a high smoke point can reach higher temperatures before the breakdown begins.

- **Flavor**
  - ☐ butter
  - ☐ margarine
  - ☐ olive oil
  - ☐ bacon grease

  ☑ **NOTE:** The fats listed above have a low smoke point.

- **Tenderness**

  ☑ **NOTE:** Fat makes baked products more tender and flaky by forming layers that separate the starch and gluten.

  - ☐ vegetable shortenings for pastry, cakes, pies, and biscuits
  - ☐ oil for quick breads and yeast breads

- **Frying** (Figure 8)

  FIGURE 8

  ☑ **NOTE:** Fat prevents food from sticking, helps to distribute the heat, and acts as a cooking medium when frying.

  - ☐ **deep-fat frying** – vegetable oils (except olive oil), vegetable shortenings, and lard are ideal because they have a high smoke point
  - ☐ **shallow-fat frying** – butter, margarine, and mixtures of animal fats and vegetable fats that have a low smoke point
  - ☐ **sauteing** – butter, margarine, vegetable oils (including olive oil); fats with a low smoke point

- **Salad dressings**

  ☑ **NOTE:** Dressings contain fat in the form of an emulsion; the fat is dispersed in acid and flavorings to form the emulsion.

☐ oil that is bland or mild in flavor

☐ vegetable oils such as corn oil, cotton seed oil, peanut oil, olive oil, safflower oil, or a combination

☑ **NOTE:** Vegetable oil is used as part of a permanent emulsion in mayonnaise. Eggs, acid, and seasonings are part of the emulsion in mayonnaise.

OBJECTIVE 11

Required Activities/
Resources
– Explanation

Define a time-work plan.

A time-work plan is a step-by-step plan for preparing a recipe. It should include all activities required by the recipe, as well as the amount of time each activity will take. Work plans will vary, since different people work at different speeds.

OBJECTIVE 12

Complete Assignment Sheet 5.

ASSIGNMENT SHEET 1

USING RECIPES

4

Name ______________________ Score ________

OBJECTIVE 4

Apply recipe math.

EQUIPMENT AND SUPPLIES

- Pencil or pen
- Calculator (optional)

INSTRUCTIONS

- Follow written instructions
- Draw conclusions

- Calculate with whole numbers
- Calculate with fractions
- Solve formula and equations
- Converts units of measure
- Solve word problems
- Use English and metric measures

Solve the following problems using the Equivalent Measures Chart and conversion formulas provided. Convert your answers to the largest practical weight or measure.

1. A recipe for broccoli casserole makes 12 servings.

   a. What would you multiply each amount by to make 4 servings?

   ____

   b. Convert the broccoli casserole ingredient 1/2 c. milk from 12 servings to 4 servings. Show your work and give your answer in tablespoons and teaspoons.

   ____

2. The recipe you are working with calls for an internal meat temperature of 170°F. Your meat thermometer has markings only for degrees C. What reading should your thermometer show when the meat is ready?

   ____

3. If you have 1 lb 5 oz of rolled oats on hand, but you need 2 lbs, how much more do you need?

   ____

4. If you have 2 cups 16 oz of vinegar, how many quarts do you have?

   ____

5. A roadside stand is selling apples for $5.00 a bushel. The sign down the road advertises 4 pecks for $4. Which is the better deal? Why?

____

6. A recipe for punch calls for one liter (L) of ginger ale. The store only sells 6 packs of 12-oz. cans. How many cans will you need?

____

7. If you have 5 1/3 tablespoons vanilla, how many cups do you have?

____

8. If you have 6 fluid oz chicken broth, how many tablespoons do you have?

____

9. You need 8 tablespoons cinnamon, and you already have 21 teaspoons on hand. How much more do you need?

____

10. What fraction of a pound does 12 ounces represent?

____

EQUIVALENT MEASURES CHART

Standard Measure	Standard Measure Equivalents	Approximate Metric Equivalents
1/8 teaspoon	*	0.5 mL
1/4 teaspoon	*	1 mL
1/2 teaspoon	*	2 mL
1 teaspoon	*	5 mL
1 tablespoon	3 teaspoons or 1/2 fluid ounce	15 mL
1/8 cup	2 tablespoons or 1 fluid ounce	30 mL
1/4 cup	4 tablespoons	50 mL
1/3 cup	5 1/3 tablespoons	75 mL
1/2 cup	8 tablespoons	125 mL
2/3 cup	10 2/3 tablespoons	150 mL
3/4 cup	12 tablespoons	175 mL
1 cup	16 tablespoons or 8 fluid ounces	250 mL
1 pint	2 cups	500 mL
1 quart	2 pints or 4 cups of 32 fluid oz.	1000 mL or 1 L
1 gallon	4 quarts	4 L
1 peck	8 quarts	8 L
1 bushel	4 pecks	32 L
1 ounce	*	28 g
1/4 pound	4 ounces	125 g
1/2 pound	8 ounces	250 g
1 pound	16 ounces	500 g
2 pounds	32 ounces	1000 g or 1 kg
1 inch	*	2.54 centimeters or 25.4 millimeters
1 foot	12 inches	304.8 millimeters (mm) or 0.3038 meters
1 degree F	*	0.556 degree C

CONVERSION FORMULAS

1. When converting degrees F to degrees C:

   (temperature in degrees F - 32) divided by 1.8 = degrees C

   EXAMPLE: (275 °F - 32) divided by 1.8 = 135 °C

2. When modifying recipe amounts (increasing or decreasing): divide the desired yield by the original yield, then multiply the original amount of each ingredient by this number.

   EXAMPLE: 6 (desired yield) divided by 2 (original yield) = 3 (number to multiply each amount by)

ASSIGNMENT SHEET 2

USING RECIPES

Name ______________________ Score ________

OBJECTIVE 6

Modify a recipe.

EQUIPMENT AND SUPPLIES

- Pencil or pen
- Calculator (optional)

INSTRUCTIONS

- Follow written instructions

- Calculate with whole numbers
- Calculate with fractions
- Converts units of measure

Part 1

- Modify the recipe provided by your instructor. In column A, identify the items in the recipe. Include all ingredients, as well as dish sizes, time requirements, and temperatures. List each item on a separate numbered line under the "ITEM" heading.
- Calculate the modifications needed to accommodate the yield in column A (2 servings). For each recipe item, write its modification in the space provided. (Use the Equivalent Measures Chart from Assignment Sheet 1 for your calculations.)
- Repeat the process for the yield in column B (12 servings).

COLUMN A: 2 SERVINGS			COLUMN B: 12 SERVINGS		
	ITEM	MODIFICATION		ITEM	MODIFICATION
1.			1.		
2.			2.		
3.			3.		
4.			4.		
5.			5.		
6.			6.		
7.			7.		
8.			8.		
9.			9.		
10.			10.		
11.			11.		
12.			12.		
13.			13.		
14.			14.		
15.			15.		

Part 2

Increase the following ingredients to accommodate a yield change from 10 to 20 servings.

1. 8 oz. apples

2. 4 oz. chopped nuts

3. 4 quarts pears

____

4. 8 tbsp. flour

____

Decrease the following ingredients to accommodate a yield change from 8 to 4 servings.

5. 1 T. butter flavoring

____

6. 1 gal. ice cream

____

7. 3/4 c. water

____

ASSIGNMENT SHEET 3

USING RECIPES

Name ______________________ Score ________

OBJECTIVE 7

Solve problems involving ingredient alternatives.

EQUIPMENT AND SUPPLIES

- Table of Substitutions
- Pencil or pen

INSTRUCTIONS

- Follow written instructions

- Calculate with whole numbers
- Calculate with fractions
- Converts units of measure
- Solve word problems
- Interpret charts and tables

Refer to the Table of Substitutions to respond to each situation.

Situation 1

A bread recipe calls for 1 tsp of baking powder. After checking your supplies, you discover that you have only 1/4 tsp of baking powder. What ingredients could you add or subtract to make the equivalent of 1 tsp baking powder?

____

____

Situation 2

While making a chocolate sheet cake, you discover that you are missing two key ingredients: 2 oz. of unsweetened chocolate and 1/2 c buttermilk. Which ingredients could you substitute for these to get a comparable cake? How much of each substitute ingredient would you need?

____

____

Situation 3

You are interested in making whole wheat muffins and decide to use honey instead of sugar. The recipe calls for 1 c of granulated sugar. How much honey would you use? What other ingredient in the recipe will need to be modified, and by how much?

____

____

Situation 4

While making a recipe for shortcake, you discover that you are out of regular butter. However, you have some margarine. What would you do?

TABLE OF SUBSTITUTIONS

Not all ingredients can be substituted. Recipes are developed with specific ingredients to give them a certain taste and texture. If you change the ingredients, you usually change the results as well.

Ingredient	Substitution
1 tsp baking powder	1/4 tsp baking soda, plus 5/8 tsp Cream of Tartar; or 1/4 tsp baking soda, plus 1/2 c sour milk, buttermilk or yogurt (decrease liquid in recipe by 1/2 c)
1 c butter	1 c margarine
1 oz chocolate, unsweetened	3 tbsp cocoa, plus 1 tbsp butter
1 tbsp cornstarch	2 tbsp flour, or 4 tbsp quick-cooking tapioca
1 c sour cream	7/8 c sour milk, plus 3 tbsp butter; or 1 c yogurt
1 whole egg	2 egg yolks, plus 1 tbsp water
1 c flour, sifted cake	1 c (minus 2 tbsp) flour, all-purpose, sifted
1 tbsp herbs, fresh	1 tsp herbs, dried
1 c honey	1 1/4 c sugar, plus 1/4 c liquid (use liquid called for in the recipe)
1 tsp lemon juice	1/2 tsp vinegar
1 c milk, whole	1/2 c evaporated milk, plus 1/2 c water; or 1 c water plus 1 1/2 tsp butter
1 c buttermilk	1 c plain yogurt; or 1 tbsp lemon juice or vinegar plus homogenized milk to make 1 cup
1 c sugar, brown	1 c white granulated sugar
1 c sugar, white granulated	1 c honey, (decrease liquid in recipe by 1/4 c); or 1 3/4 c confectioner's sugar

ASSIGNMENT SHEET 4

USING RECIPES

4

Name ______________________________ Score __________

OBJECTIVE 9

Determine spice alternatives.

EQUIPMENT AND SUPPLIES

- Spice chart
- Recipe
- Ingredients for recipe
- Paper
- Pencil or pen

INSTRUCTIONS

- Follow written instructions
- Use standard grammar, spelling, and capitalization
- State ideas clearly
- Use complete sentences
- Interpret charts and tables
- Conduct experiments
- Participate in group activities

Part 1

1. With your group, select a recipe that calls for herbs and spices in the ingredients.
2. Substitute the original spices and herbs with new ones using the Spice Chart as a guide. Be creative and be sure to record your proposed substitutions and the reason(s) for each.
3. Prepare the original recipe and the changed recipe.
4. Have your group and other class members sample both recipes and compare the results. Record their observations and comments.
5. Was one recipe better than the other? If so, how was it better? Please describe.

Part 2

Identify the correct alternatives for each scenario. Use the Spice Chart as a guide.

1. You are making a pasta dish with a tomato sauce that calls for oregano. What spices and/or herbs would be appropriate substitutes?

____

____

- Collect/record information
- Draw conclusions

2. Your grandmother's recipe for pickles is missing. You can remember that three spices were called for in her recipe. Which spices could you use to make the pickles?

3. When baking bread that calls for allspice, what other spices and herbs may be substituted?

4. You are planning to panfry a fish for dinner using thyme for seasoning. Which spices or herbs would go well with fish and could be substituted for thyme in this recipe?

5. You are cooking an Italian dish for a heart patient who can have no salt. What could you use to add flavor (without the salt)?

SPICE CHART

SPICE	BEST USE
Allspice — dried spice berries; tastes of cinnamon, cloves and nutmeg	spice cakes, cookies, breads, barbecue sauce, pickling
Cinnamon — spice bark of cassia tree; sweet and spicy	spice cakes, fruit and squash dishes, pickling, cookies
Clove — dried, unopened bud of evergreen tree; pungent and sweet	use whole cloves to stick in ham, glazed beef, pork; ground cloves add flavor to pickled fruits and meat gravies
Curry powder — blend of many spices; yellow-gold color; pungent, hot flavor	used in Middle Eastern dishes, curried beef, lamb, seafood, salad dressings, vegetables
Ginger — dried, peeled root of the ginger plant; hot, spicy, and sweet flavor with bite and aroma	whole ginger used in pickling, syrups, beverages; ground ginger used in baked goods sauces, soups, meats and poultry
Mace — outer covering of nutmeg; flavor is similar but slightly milder than nutmeg	spice cakes, cookies, fruit desserts, carrots, broccoli, beverages
Nutmeg — spice seed (about the size of an olive) of the nutmeg tree; sweet, nutty flavor	spice cakes, cookies, fruit desserts, carrots, broccoli, beverages, cream sauces, eggnog, quiches
Pepper — berries from vine; hot, biting, pungent taste	widely used in many dishes that are not sweet
Poppy seed — tiny blue-black seed of poppy flower; nut-like flavor	toppings for rolls, breads, pastries, cakes, also used in noodles and fresh fruit
Tumeric — root of a plant in the ginger family; brilliant yellow color, slightly bitter flavor	prepared mustard, curry powder, pickling, relishes, cream sauces, rice dishes
Vanilla — long bean pod of orchid plant; delicate, subtle flavor	used in sweet foods such as desserts and candies

☑ **NOTE:** Spices and herbs tend to lose their flavor, color, and aroma with prolonged storage. Buy small quantities and write the date of purchase on the container.

HERB CHART

HERB	BEST USE
Basil – annual plant of the mint family; aromatic, sweet clove-like taste, mildly pungent flavor	Italian dishes, most tomato dishes, salad dressings, vegetables
Bay leaf – evergreen or sweet laurel leaves; pungent, woodsy, almost bitter flavor	pickling, mixed spices, vegetables, stews, pot roast, Italian sauces
Caraway seed – the fruit of a plant in the parsley family; slightly sweet, licorice flavor	eggs, cheese spreads, noodles, rye bread, cooked vegetables, cabbage, sauerkraut
Chervil – delicate leaf similar to parsley; subtle, sweet, celery-licorice flavor	like parsley in green salads, fish, shellfish, omelettes
Chives – bright green color; mild onion or garlic flavor	decorative and in sauces, eggs, cheese, fish
Coriander/Cilantro – the seeds of a parsley-like plant are called coriander, the leaves are called cilantro; the seeds are nutty tasting, the leaves are soapy and spicy	whole seeds for pickling, ground for baking, in curries, applesauce; leaves in Mexican, Latin American, and Asian cooking
Cumin – small seed from a plant in the parsley family; bitter, hot flavor	curry and chili powder, curried vegetables, soups, stews, tomato sauce, Middle Eastern dishes
Dill – seeds and leaves of a plant in the parsley family; the seeds are more pungent and have a delicate caraway taste	pickling, rye and pumpernickel breads, salads, eggs, sauces, cooked vegetables, cucumbers, rice
Fennel seeds – seeds from the fennel plant; licorice flavor similar to dill and anise	fish soup, vegetables, salads and dressings, Scandinavian breads, cookies
Garlic – an edible root made of sections called cloves; a member of the lily family; strong, pungent flavor	soups, Italian dishes, stews, marinades, and breads; can be cooked and eaten alone
Horseradish – root of the horseradish plant; sharp, hot taste	sauces, seafood, and with meats and poultry
Marjoram – member of the mint family; slightly bitter flavor similar to but more delicate than oregano	in virtually any food except sweet dishes, meat, poultry, fish, and vegetables
Mint – more than 30 varieties; refreshing scent and cool taste	Middle Eastern dishes, jellies, fruit salads, desserts
Oregano – a type of marjoram similar in aroma and flavor; slightly bitter	Italian, Greek, and Mexican dishes, chili, pork, cheese dishes, eggs
Parsley – crisp herb with mild scent and celery flavor; flat leaf has stronger flavor, curly leaf has milder flavor	curly leaf as garnish; both types in soup stocks, cream and tomato sauces, potatoes, noodles, cheeses, fish, meats, poultry

HERB CHART - CONTINUED

HERB	BEST USE
Rosemary — needle-like leaves of an evergreen shrub of the mint family; strong pine scent and flavor	with game, poultry, meats; add sparingly to vegetable dishes, breads and fruit
Sage — a dried leaf from the mint family; tart, musky flavor	in poultry stuffing; sparingly in poultry, meats, fish, salad dressings, vegetables
Tarragon — dark green leaf from a shrub-like plant; mild licorice flavor	in flavored vinegars, mustard, pickling, shellfish, fish, eggs, mayonnaise and salad dressings, tomato dishes
Thyme — tiny grey-green leaf in the mint family; minty, tea-like flavor	in fish and clam chowders, sausages, meats, poultry, fish, cheese dishes, stews, fresh salads
Saffron — bright yellow dried stigmas of the crocus; handpicked and very expensive; fragrant and nice, slightly bitter flavor	add a bright color to rice dishes; in chicken, seafood, soups, Swedish cakes and breads

ASSIGNMENT SHEET 5

USING RECIPES

Name ______________________________ Score __________

OBJECTIVE 12

Prepare a time-work plan.

EQUIPMENT AND SUPPLIES

- Recipe (approved by instructor)
- Pencil or pen

INSTRUCTIONS

Complete the following time-work plan for a recipe that your instructor approves.

- Follow written instructions
- Complete forms and records
- Calculate with whole numbers
- Calculate with fractions

TIME-WORK PLAN

NAME: ______________________________

RECIPE/FOOD TO PREPARE: ______________________________

FOOD SUPPLIES NEEDED (type and amount)	**AVAILABILITY**		
	On Hand	**Purchase**	**Other**

EQUIPMENT AND UTENSILS NEEDED	
______________________	______________________
______________________	______________________
______________________	______________________
______________________	______________________
______________________	______________________
______________________	______________________
______________________	______________________
______________________	______________________
______________________	______________________
______________________	______________________

ORDER OF ACTIVITIES	**PERSON RESPONSIBLE**	**TIME NEEDED/REQUIRED** (approx. time in minutes)	**COMPLETED?** (Check)
1. ____________	____________	____________	____________
2. ____________	____________	____________	____________
3. ____________	____________	____________	____________
4. ____________	____________	____________	____________
5. ____________	____________	____________	____________
6. ____________	____________	____________	____________
7. ____________	____________	____________	____________
8. ____________	____________	____________	____________
9. ____________	____________	____________	____________
10. ____________	____________	____________	____________
11. ____________	____________	____________	____________
12. ____________	____________	____________	____________
13. ____________	____________	____________	____________
14. ____________	____________	____________	____________
15. ____________	____________	____________	____________
TOTAL TIME (estimated)		____________	

OBJECTIVE SHEET

APPLYING FOOD SCIENCE PRINCIPLES

5

INTRODUCTION

We deal with food products in some way every day when we prepare, cook, or eat foods. Yet, we may not fully understand the many phenomena we observe and take for granted during food preparation and cooking. The scientific principles responsible for these phenomena are what food science is all about. Knowing how and why certain changes take place will help us to better understand the foods we eat.

FOCUS ASSIGNMENTS

Reading Comprehension
- Gain factual information
- Analyze cause and effect
- Draw conclusions

Language
- Use standard grammar, spelling, and capitalization
- State ideas clearly

Composition
- Use complete sentences

FOCUS ASSIGNMENTS

PREREADING:	Read Handout 1, "Food Additives and the FDA." While you are reading, think about how consumers depend on the enforcement of the Food and Drug Administration (FDA) rules and regulations every day when we evaluate the food we buy.
WRITING:	Write a half-page paper addressing the questions, "Do you believe that the protection offered by the Food, Drug, and Cosmetic Act is adequate to ensure safe food products?" and "How do you think the FD & C Act can be strengthened?"

UNIT OBJECTIVE

After completing this unit, you will show the following competencies by mastering the activities on the Assignment and Job Sheets and by scoring at least 85% on the Written Test.

SPECIFIC OBJECTIVES

1. Distinguish among the purposes of ingredients used in baking.
2. Demonstrate the roles of leavening agents. (Assignment Sheet 1)
3. Demonstrate the roles of thickening agents. (Assignment Sheet 2)
4. Test growing conditions for yeast. (Assignment Sheet 3)
5. Bake a yeast bread product. (Job Sheet)
6. Explain how enzyme reactions are involved in food preparation.
7. Demonstrate the role of enzymes in food preparation. (Assignment Sheet 4)
8. Distinguish among conventional, convection, and microwave cooking.
9. Compare the effects of cooking using various methods. (Assignment Sheet 5)
10. Explain the roles of acids and bases.
11. Determine the pH of food items. (Assignment Sheet 6)
12. State the purposes of food additives.
13. Discuss the advantages and disadvantages of food additives.
14. Characterize natural and artificial food additives.
15. Distinguish among processes for preserving foods.
16. Compare methods of preserving a food item. (Assignment Sheet 7)
17. Describe the impact of the freezing process on foods.
18. Analyze the effects of freezing on a food item. (Assignment Sheet 8)
19. Explain the impact of factors affecting cooking rates and results.
20. Analyze the impact of surface area on cooking rates and results. (Assignment Sheet 9)
21. Analyze the impact of temperature on cooking rates and results. (Assignment Sheet 10)

INFORMATION SHEET

APPLYING FOOD SCIENCE PRINCIPLES

5

OBJECTIVE 1

Distinguish among the purposes of ingredients used in baking.

Required Activities/ Resources
– Transparency Master 1

Optional Activities/ Resources in Instructor's Guide

WORDS YOU SHOULD KNOW	
fermentation	process by which yeast acts upon sugar to produce carbon dioxide and alcohol
gluten	a protein substance formed when the wheat flour proteins, glutenin and gliadin, are mixed with liquid. Gluten gives strength and elasticity to batters and dough.
porous	full of tiny holes (pores) through which liquids, air, or light can pass

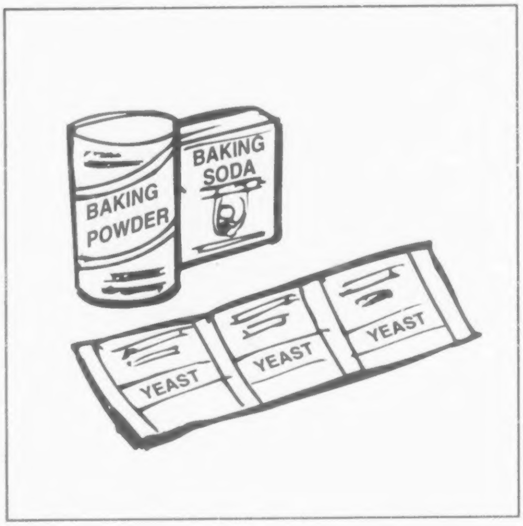
- **Flour** – includes bread flour, all-purpose flour, cake flour (Figure 1)
  - ☐ Forms gluten when mixed with a liquid
  - ☐ Gives structure to baked products

FIGURE 1

Flour
FLOUR

- **Leavening agents** – enable the product to rise by trapping air or gas in the mixture. As the air or gas expands, the product rises, increases in volume, and becomes light and porous. (Figure 2)

FIGURE 2



  - ☐ **Air** – trapped in a mixture when beating eggs, sifting flour, creaming fat and sugar together, folding dough, or beating batter

  - ☐ **Baking powder (double-acting)** – combination of the chemicals baking soda, starch, and acid salt, which together create carbon dioxide; requires moisture and heat to be activated

  - ☐ **Baking soda (sodium bicarbonate)** – forms carbon dioxide gas when mixed with an acid, such as buttermilk, yogurt, or citrus juice

  - ☐ **Steam** – formed from liquid when baking at high temperatures

  - ☐ **Yeast** – causes fermentation and gives off carbon dioxide when mixed with liquid, sugar, and warm temperatures

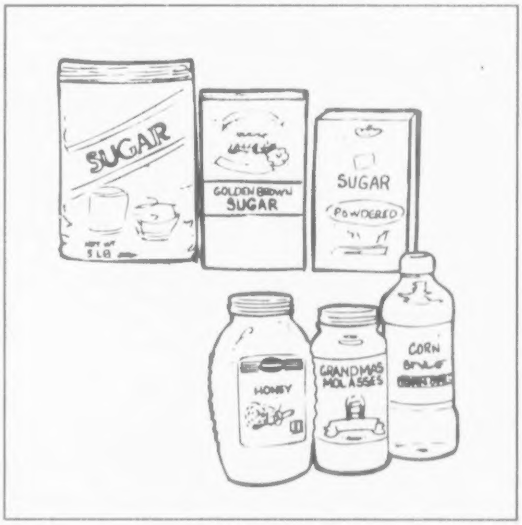
    EXAMPLE: active, fast rising, compressed

- **Liquids** – include milk, water, fruit juices, vegetable juices, eggs, and fat (Figure 3)
    - ☐ Trigger the release of carbon dioxide in leavening
    - ☐ Dissolve ingredients (such as sugar or spices)
    - ☐ Convert into steam and stretch the gluten

FIGURE 3

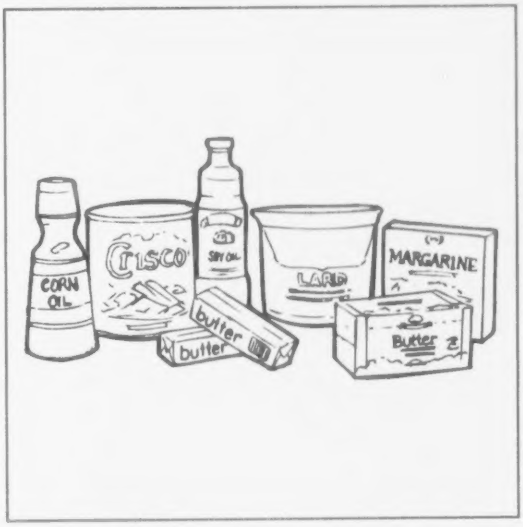
- **Sugar** – includes white sugar, brown sugar, molasses, and honey (Figure 4)
    - ☐ Serves as food for the yeast in baked products
    - ☐ Helps bread to rise by allowing yeast to grow and to make carbon dioxide
    - ☐ Helps crusts to brown
    - ☐ Adds flavor

FIGURE 4


SUGAR
GOLDEN BROWN SUGAR
SUGAR
POWDERED
HONEY
GRANDMAS MOLASSES
CORN

- **Fats and Oils** – includes margarine, butter, shortening, vegetable oil, and lard (Figure 5)
    - ☐ Helps dough separate into layers
    - ☐ Makes crumb texture softer, tender, and sometimes flakier
    - ☐ Traps and holds air for leavening
    - ☐ Some, such as butter or margarine, add flavor

FIGURE 5



- **Eggs**
    - ☐ Add flavor and color
    - ☐ Improve the structure by making dough more elastic
    - ☐ Help make fine crumbs and tender crusts

      ☑ **NOTE:** This is due to the fat content in the yolk.
    - ☐ Act as a binding agent
    - ☐ Add to nutritional content
    - ☐ May act as a leavening agent by incorporating air when beaten
- **Salt**
    - ☐ Adds flavor
    - ☐ Preserves
    - ☐ Regulates the action of yeast
    - ☐ Strengthens the gluten
- **Seasonings and flavorings**
    - ☐ Add flavor

- Add color
- Add texture

EXAMPLE: spices, herbs, nuts, seeds, extracts

OBJECTIVE 2

Complete Assignment Sheet 1.

OBJECTIVE 3

Complete Assignment Sheet 2.

OBJECTIVE 4

Complete Assignment Sheet 3.

OBJECTIVE 5

Complete the Job Sheet.

OBJECTIVE 6

Optional Activities/
Resources in
Instructor's Guide

Explain how enzyme reactions are involved in food preparation.

WORDS YOU SHOULD KNOW

coagulate	the process in which a liquid turns into a semi-solid
collagen	an insoluble protein
denature	a change in a protein brought about by temperature changes, pH changes, or irradiation
enzymes	proteins that accelerate the rate of chemical reactions; present in plant and animal tissue. Enzymes continue to act until deactivated. Temperature and pH affect enzyme activity.
pasteurization	a process that uses heat to destroy bacteria in milk

- **Meats**
  - Enzymes attack and degrade the proteins in meat and act on the connective tissue.
  - Commercial tenderizers contain enzymes used to break down the protein collagen, which tenderizes the meat.

- ☐ Enzymes used as a tenderizer are most effective on thin cuts of meat, since penetration is not deep into the surface.
- ☐ Certain enzymes are activated at the death of the animal and will tenderize and add flavor to the meat. This process is called aging. Certain protein-splitting enzymes are injected into the veins of an animal a few minutes before slaughtering. The enzyme is spread throughout the animal and tenderizes all the meat.

- **Dairy products**
  - ☐ During pasteurization, heat denatures the enzymes and destroys harmful microorganisms. The adequacy of milk pasteurization can be measured by enzyme activity.
  - ☐ Enzyme coagulation is used in the production of cheese, ice cream, and puddings.
- **Fruits and vegetables**
  - ☐ Enzymes found in plant tissues cause ripening, which softens and tenderizes fruit. Enzyme reactions during ripening help in the formation of pectin needed to make jellied products.
  - ☐ Certain enzymes in pineapple, figs, kiwi fruit, and papaya prevent gelation in gelatin mixtures. These enzymes can be denatured by heat or pH level.

    EXAMPLE: Cooked or canned pineapple can be used in flavored gelatin products because the enzymes have been denatured.
  - ☐ Enzyme action helps starch change to sugar, which brings out flavor.
- **Bakery products** — During fermentation, starch-degrading enzymes help break down starch to provide food for yeast.
- **Food preservation** — Preservation methods such as blanching, freezing, canning, and drying slow or stop enzyme activity when food is at its peak quality.

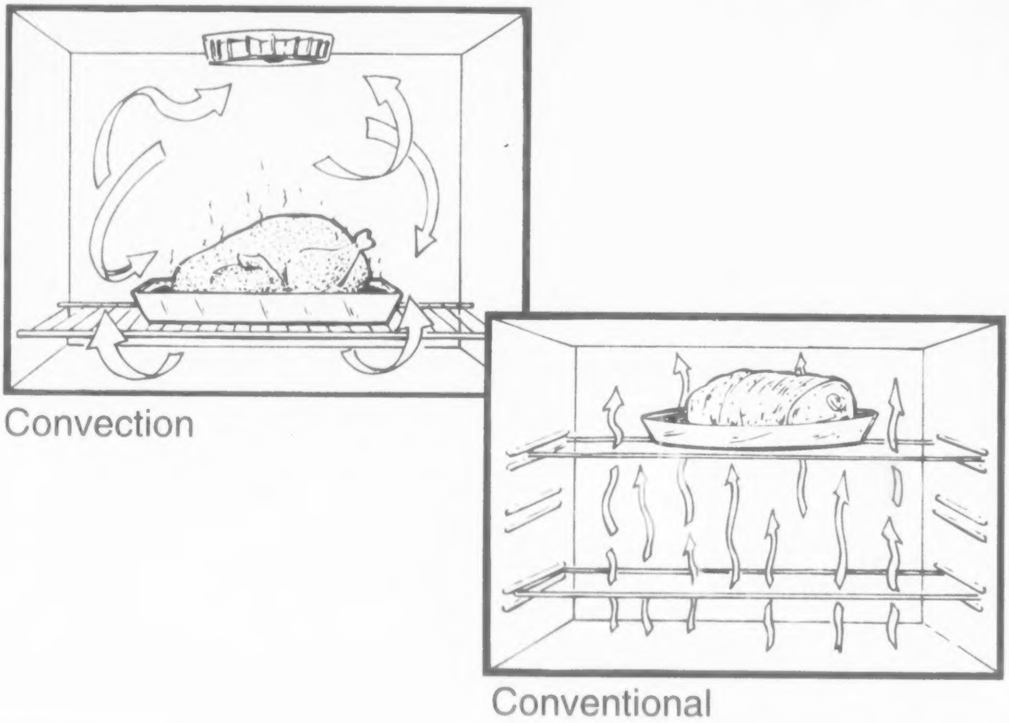
OBJECTIVE 7

Complete Assignment Sheet 4.

OBJECTIVE 8

Distinguish among conventional, convection, and microwave cooking.

FIGURE 6



Required Activities/
Resources
– Transparency
Masters 7 and 8
– Demonstration

Optional Activities/
Resources in
Instructor's Guide

- **Conventional** (Figure 6)
  - ☐ Uses radiant heat; transfers heat from hot burner or oven to the food
  - ☐ Cooks food from the outside to the inside
  - ☐ Does not distribute heat uniformly in the oven
  - ☐ Allows food to brown
  - ☐ Uses an electric or gas heat source
  - ☐ Allows user to choose exact temperature with a thermostatic control

☑ **NOTE:** Broiling uses direct heat that is controlled by varying the distance from the heat or the cooking time.

- **Convection** (Figure 6)

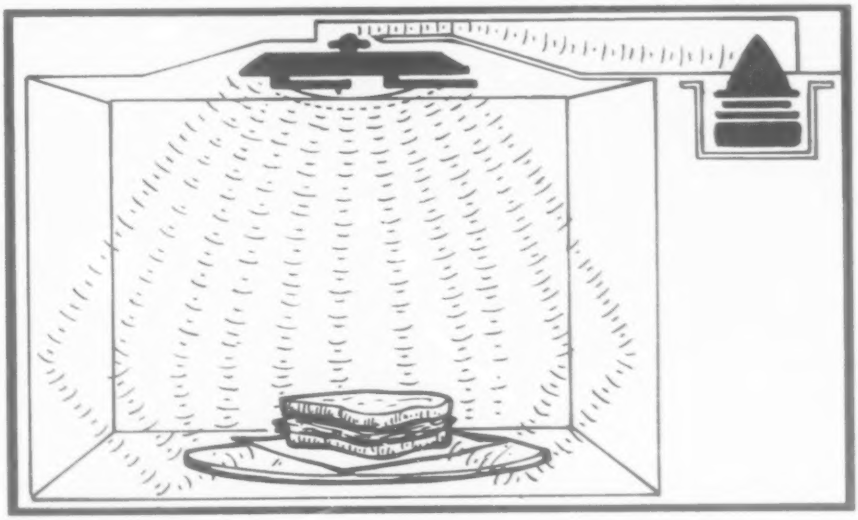
  ☑ **NOTE:** The comparisons which follow are with a conventional oven.

  - ☐ Circulates heated air around the food using a fan
  - ☐ Heats food from the outside to the inside
  - ☐ Reduces cooking times because of rapid air circulation
  - ☐ Provides more even temperatures and bakes food evenly on all racks
  - ☐ Browns food evenly without turning or shifting

    ☑ **NOTE:** Baked goods may have a better shape if they are turned while baking.

  - ☐ Allows for cooking frozen food without thawing
  - ☐ Uses less energy

FIGURE 7



- **Microwave** (Figure 7)
  - Uses a form of electromagnetic energy

    ☑ **NOTE:** Electricity is changed into high frequency energy waves (microwaves) by a magnatron tube in the oven. A fan circulates the waves.
  - Creates heat in the food through the friction caused by vibrating food molecules
  - Conducts heat toward the center of the food, cooking from the inside to the outside of the food

    ☑ **NOTE:** Microwaves penetrate about one inch into the surface of the food.
  - Is useful for some foods but not for others

    EXAMPLE: Yeast breads turn out better in a conventional oven.
  - Cannot brown food or make food crisp

    ☑ **NOTE:** Some ovens include a browning element to add color and crispness. Some commercial food packages include a special material that is placed under the food to help the food turn brown and crisp.
  - Cooks food faster than in conventional or convection ovens
  - Uses less energy than a conventional oven
  - Designed for speed and convenience
  - Designed for cooking small and medium amounts of food
  - Allows foods to retain more nutrients than conventionally cooked foods

    ☑ **NOTE:** Less water is used in cooking.

OBJECTIVE 9 **Complete Assignment Sheet 5.**

OBJECTIVE 10

Optional Activities/
Resources in
Instructor's Guide

Explain the roles of acids and bases.

WORDS YOU SHOULD KNOW

acids	compounds that have a sour taste. Organic acids are found in foods and are composed of hydrogen, carbon, and oxygen. EXAMPLE: Some of the common organic acids are: acetic acid (vinegar), tartaric acid (grapes and baking powder), and malic acid (apples, pears and other fruit).
bases	substances that can soak up or combine with hydrogen ions, reducing the acidity of a product; known as alkalines EXAMPLE: A common base in food is the sodium bicarbonate in baking powder and baking soda.
marinate	to soak food in a mixture to enhance flavor and to tenderize. Liquid is absorbed by the food, changes the flavor and color of the food, and allows the food to keep more moisture when it is cooked. A **marinade** is the liquid in which a food is soaked.

- **Acids**
  - Used in making sherbets, carbonated beverages, and fruit drinks to intensify their flavor and tart taste
  - Some, such as vinegar or lemon juice, prevent undesirable color changes in red vegetables cooked in hard water
  - In jelly making, changes the nature of pectin so that it forms the proper bonds

    ☑ **NOTE:** Acid levels need to be correct for pectin to gel.
  - Can increase tenderness of meat when used in a marinade or when added during cooking

    EXAMPLE: Tomatoes, sour cream, vinegar, wine, and lemon juice are some of the acids that can be used to make meat more tender.

☐ Can produce a leavening agent for baking

☑ **NOTE:** In baked products, baking soda must be mixed with an acidic food such as sour cream, buttermilk, or yogurt. The alkali in the baking soda combines with the acid, neutralizes it, and forms carbon dioxide which acts as a leavening agent. Baking powder is a mixture of soda and a dry acid. Therefore, baking powder does not require additional acid.

☐ Can decrease the thickening power of a starch

☐ Can prevent discoloration in cut low-acid fruits such as bananas, apples and pears

☐ Help to neutralize the effects of bases in foods

- **Bases** – Help to neutralize the effects of acids in foods

  EXAMPLE: The right balance of acid is crucial in many dairy products. Excessive acidity in cream is neutralized by adding an alkaline (base) substance to control the flavor and to keep the quality of butter.

OBJECTIVE 11

Complete Assignment Sheet 6.

OBJECTIVE 12

Required Activities/
Resources
– Handout 2

Optional Activities/
Resources in
Instructor's Guide

State the purposes of food additives.

WORDS YOU SHOULD KNOW	
food additive	a substance added to food to preserve the food, to enhance its flavor, or to improve its appearance. Food additives can also become part of a food product unintentionally. Unwanted additives include pesticide residues, plant growth regulators, hormones, and antibiotics, as well as substances that enter a food during processing.

- Preserve food to increase shelf life
- Maintain product consistency
- Improve, maintain, or restore nutritional value
- Maintain product texture
- Improve flavor

578

- Speed aging of foods

  EXAMPLE: Cheese, flour

- Give desired color and enhance attractiveness
- Provide leavening
- Control acidity and alkalinity

OBJECTIVE 13

Optional Activities/
Resources in
Instructor's Guide

Discuss the advantages and disadvantages of food additives.

- **Advantages**
  - ☐ Help increase the food supply
  - ☐ Help reduce nutritional deficiencies in many people
  - ☐ Expands offering of food products

    ☑ **NOTE:** Many food products could not be offered in their present form without additives.

  - ☐ Make food safer for human consumption
- **Disadvantages**
  - ☐ May not be safe for all people

    EXAMPLE: Some people have adverse reactions to sulfites, color additives, and low-calorie sweeteners.

  - ☐ Can produce toxic effects at some level

    EXAMPLE: Table salt can be toxic if the dose is large enough.

  - ☐ Can increase long-term health risks due to overuse
  - ☐ May disguise poor food quality, handling, or processing
  - ☐ May significantly destroy nutrients
  - ☐ May be used to deceive the consumer

OBJECTIVE 14

Required Activities/
Resources
– Transparency Master 9

Optional Activities/
Resources in
Instructor's Guide

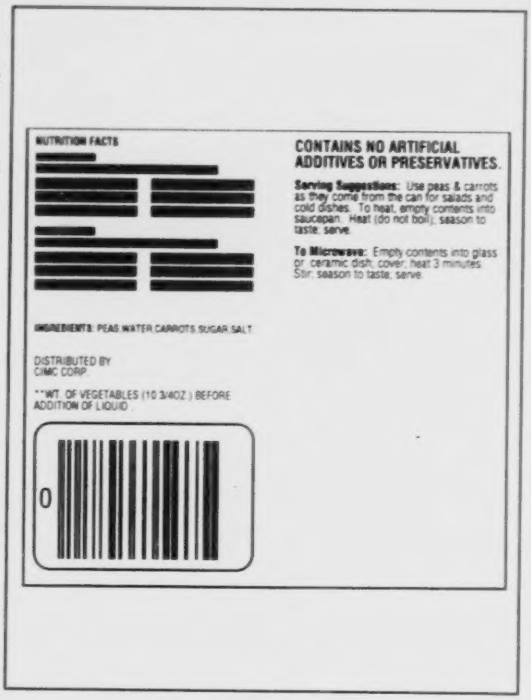
Characterize natural and artificial food additives.

- Natural additives are manufactured from natural resources. Artificial additives are not found in nature.

  EXAMPLE: Lecithin is a natural additive that helps maintain product consistency and is derived from corn and soybeans. Beets provide beet powder used as a food coloring.

- Natural additives are not chemical free. All foods and their additives are made of hydrogen, carbon, oxygen, nitrogen, and other elements.

FIGURE 8


NUTRITION FACTS
CONTAINS NO ARTIFICIAL ADDITIVES OR PRESERVATIVES.
Serving Suggestions: Use peas & carrots as they come from the can for salads and cold dishes. To heat, empty contents into saucepan. Heat (do not boil); season to taste; serve.
To Microwave: Empty contents into glass or ceramic dish; cover; heat 3 minutes. Stir; season to taste; serve.
INGREDIENTS: PEAS WATER CARROTS SUGAR SALT
DISTRIBUTED BY
CIMC CORP.
**WT. OF VEGETABLES (10 3/4OZ.) BEFORE ADDITION OF LIQUID
0

- Artificial additives are more economical to produce than their natural equivalent.

- Artificial additives are purer and maintain a more consistent quality than their natural equivalent.

- Natural and artificial additives are equally safe.

OBJECTIVE 15

Required Activities/
Resources
– Transparency
Masters 10 and 11

Optional Activities/
Resources in
Instructor's Guide

Distinguish among processes for preserving foods.

- **Irradiation** – Exposes food to gamma radiation, electron beams, or x-rays to extend the food's shelf life.

  ☑ **NOTE:** The food is not radioactive, but irradiation is thought to cause chemical changes in food.

- **Canning** – Uses heat to destroy enzyme action and microorganisms; seals food in sterile, airtight containers to prevent contact with contaminants. Hot pack method requires precooking and uses foods which are loosely packed; cold pack method uses raw foods which are tightly packed; boiling water bath method uses low heat and is used for high-acid foods; a pressure canner uses high heat and is used for low-acid foods.

BEST COPY AVAILABLE

☑ **NOTE:** Air left in containers causes food to darken through oxidation. Water-soluble vitamins are also adversely effected by heat and loose vitamin concentration. However, canned foods retain more nutrients than dried foods, but retain less nutrients than frozen-cooked or fresh-cooked foods.

- **Drying** – Removes moisture to prevent the growth of microorganisms. In sun drying, food is placed on screen racks which allow air to circulate around the food. In oven drying, food is placed on a screen which is stretched over the oven racks. Dehydrators maintain a constant temperature and use a fan to circulate warm air around the food.

- **Pickling** – Involves soaking certain products in a solution of salt and water (called brine). The heavy salt concentration makes it impossible for microorganisms to draw water from the solution and prevents their growth. Food is packed in a pickling liquid of salt, vinegar, water, and spices to preserve it.

  ☑ **NOTE:** Pickled food and relishes are processed with the boiling water bath method of canning.

- **Fermenting** – Preserves food by using substances that are naturally present in the food product. Certain foods contain microorganisms that produce substances that are poisonous to the microorganisms themselves.

  EXAMPLE: The bacteria present when producing pickles and sauerkraut make lactic acid which is toxic to the bacteria.

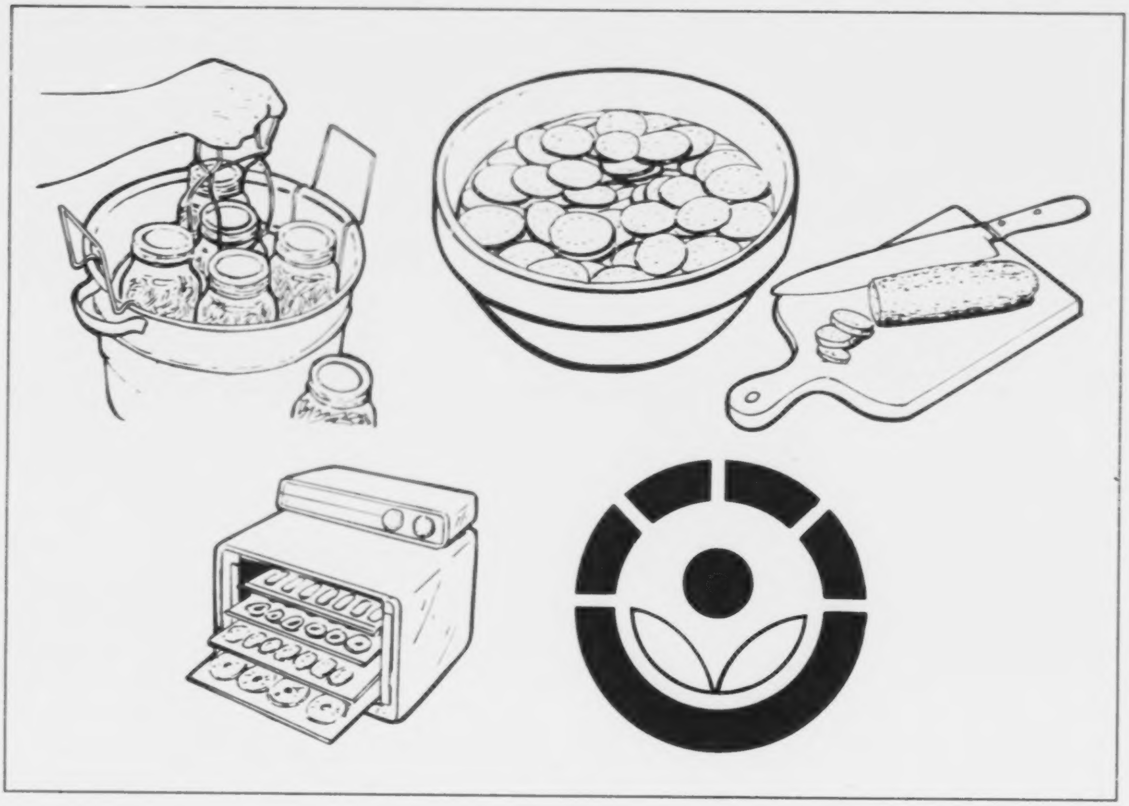
- **Freeze-drying** – Removes water vapor from frozen foods, which prevents microbial growth.

  EXAMPLE: Freeze dried coffee

- **Seasoning and smoking** – Preserves foods using added seasonings such as salt, sugar, acid, or spices, or using wood smoke

  ☑ **NOTE:** Certain substances in wood smoke, called phenols, act as a preservative.

FIGURE 9



OBJECTIVE 16

Complete Assignment Sheet 7.

OBJECTIVE 17

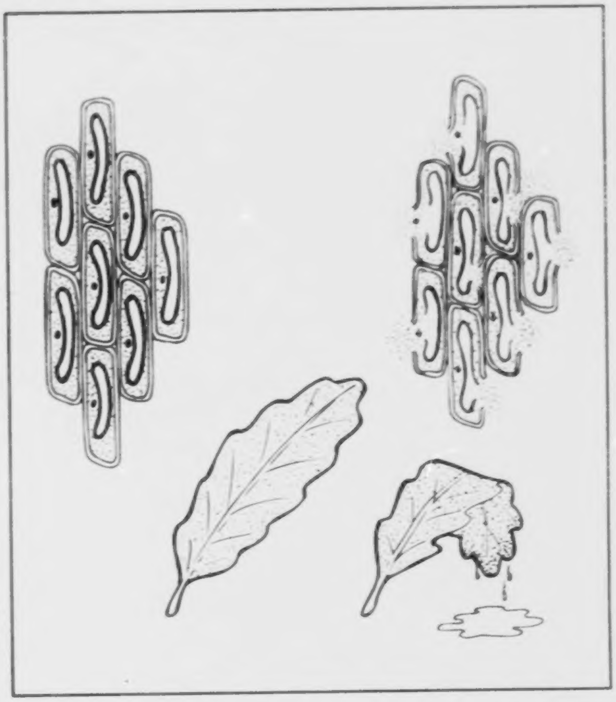
Describe the impact of the freezing process on foods.

Required Activities/
Resources
– Transparency Master 12

Optional Activities/
Resources in
Instructor's Guide

WORDS YOU SHOULD KNOW	
freezing point	the temperature at which a material changes from a liquid to a solid

FIGURE 10



- Water expands as it turns to ice crystals; these crystals can damage the cell walls of fruits and vegetables, allowing the cell fluids to leak out. Quick-freezing foods produces tiny ice crystals. Foods with a very high water content, such as celery, tomatoes, and cucumbers, do not freeze well; their crisp texture is lost. Slow-freezing foods forms large ice crystals. These foods lose water content as they thaw. The large crystals formed during slow freezing damage the cell structure of food and changes the texture; rapid freezing forms small crystals that do less damage to cells. (Figure 10)

  ☑ **NOTE:** Place foods in thin layers to encourage quick freezing.

- Freezing slows enzyme activity. However, changes caused by enzyme action, such as color and flavor changes, will occur over long periods of time.

- Proper freezing does not have any significant effect on the nutritive value of major nutrients such as proteins, carbohydrates, and fats. When food freezes, a change takes place in protein structure.

- Freezing preserves flavor, texture, appearance, and nutritive value of fresh products and prevents foods from spoiling.

- Slowly-frozen meat denatures proteins, making them unable to reabsorb water when they thaw. This causes the meat to be tough and dry.

- Poor packaging may cause foods to lose flavor, color, and texture during freezing, or develop freezer burn causing foods to dehydrate and become tough. Frozen cooked foods lose their flavor and texture faster than frozen fresh foods.

- Blanching fruits and vegetables before freezing stops enzyme action.

OBJECTIVE 18

Complete Assignment Sheet 8.

OBJECTIVE 19

Optional Activities/ Resources in Instructor's Guide

Explain the impact of factors affecting cooking rates and results.

WORDS YOU SHOULD KNOW	
barometric pressure	a measure of the atmospheric pressure and changes according to weather

- **Altitude** – As altitude increases, water boils at a lower temperature. For every 500-foot increase in altitude, the boiling point of water drops 1°F. At high altitudes, foods cooked in liquids take less time to cook because they cook at lower temperature levels than at lower altitudes. Baked products that are leavened rise faster, use less leavening agents and sugar, and usually increase the amount of liquid since air is thinner at high altitudes.

- **Barometric pressure** – On cloudy days, the barometric pressure is lower and the air is less dense, allowing water to boil at lower temperatures. In clear weather, the barometric pressure rises, the air is more dense, and the boiling point of water is higher.

- **Density** – Size and shape of food affects cooking time; large cuts of meat or vegetables take longer than smaller cuts; thinner pieces will cook faster than thicker pieces. The more compact a food is, the longer its cooking time.

- **Liquid** – Meats cooked in liquid will fall apart due to over-coagulation of the proteins. The shorter the cooking time and the least amount of contact with a liquid, the greater the nutritional value of the cooked food (since water-soluble vitamins are lost or damaged when cooking foods in liquid). Prolonged cooking of any plant or animal product breaks down tissue and releases nutrients into the liquid used for cooking.

- **Surface area** – The greater the surface area, the faster the cooking rate because the greater area allows heat to be conducted to the center of the food faster.

  ☑ **NOTE:** Smaller pieces have more surface area per weight and can overcook more easily.

- **Temperature** – Heat can destroy vitamins. Cooking temperature also affects cooking times: high temperatures require less time, low temperatures require more time. High-temperature cooking for meat creates tough, dry meat. Meat shrinks in weight and size when cooked. Meat shrinks more at high temperatures than at low temperatures.

OBJECTIVE 20 **Complete Assignment Sheet 9.**

OBJECTIVE 21 **Complete Assignment Sheet 10.**

ASSIGNMENT SHEET 1

APPLYING FOOD SCIENCE PRINCIPLES

Name ______________________________ Score __________

OBJECTIVE 2

Demonstrate the roles of leavening agents.

INTRODUCTION

Baking powder is a leavening agent that releases carbon dioxide gas. In this experiment, you will compare two baked products: one that contains a leavening agent and one that does not. This demonstration will help identify the role leavening agents play in baking.

EQUIPMENT AND SUPPLIES

- Ingredients for basic muffin recipe: 2 c all-purpose flour; 1 T baking powder; 1 t salt; 3 T sugar; 1 egg, beaten; 1 c milk; 3 T vegetable oil (yield: 12 muffins)

- Cooling rack
- Cutting board
- Measuring cups
- Measuring spoons
- Mixing bowls (2)
- Muffin tin
- Muffin tin liners
- Oven
- Pen or pencil
- Ruler
- Spoon (wood)

INSTRUCTIONS

- Follow written instructions
- Complete forms and records

1. Pre-heat oven to 425°F.

2. Combine flour, sugar, baking powder, and salt in a mixing bowl.

3. Blend egg, milk, and oil in a small bowl.

4. Add the liquid all at once to flour mixture. Stir only until flour is moistened; batter will be lumpy. Do not over mix.

5. Line muffin cups with paper liners. Fill muffin cups 2/3 full.

6. Bake at 425°F for 18-20 min. or until golden brown.

- Make measurements
- Conduct experiments
- Collect/record information

7. Remove muffins from oven and cool.
8. Prepare a second batch of batter as in steps 1-7 except DO NOT add the baking powder and salt.
9. Compare the outside appearance of the muffins.
10. Cut the muffins open and compare the interior.
11. Complete the Leavening Agent Observation Chart.
12. What did you learn?

____

____

____

____

____

____

LEAVENING AGENT
OBSERVATION CHART

Characteristics	A Baking Powder	B No Leavening Agent
Height of muffin		
Outside: **color**		
texture		
Inside: **color**		
texture		
Flavor (describe)		
Preference (check)		

ASSIGNMENT SHEET 2

APPLYING FOOD SCIENCE PRINCIPLES

5

Name ______________________________ Score __________

OBJECTIVE 3

Demonstrate the roles of thickening agents.

INTRODUCTION

The most common thickeners include eggs, flour, corn starch, tapioca starch, and vegetables. Each thickens differently and is used in certain ways. (Other starches used as thickeners include rice starch, potato starch, and sago starch.) This experiment will show how different agents thicken in cooking.

EQUIPMENT AND SUPPLIES

- Ingredients: Corn starch, egg (1), flour (all-purpose), water

- Measuring cups
- Measuring spoons
- Pan (to boil water)
- Pans (3, small)
- Spoon (wood)

INSTRUCTIONS

- Follow written instructions
- Complete forms and records
- Use English and metric measures
- Make measurements

1. In groups, make the following sauces. (Each group uses a different thickening agent.)

   Mixture 1: Flour

   Put 3 T flour in a bowl.
   Add 1/4 c cold water.
   Mix thoroughly.
   Add mixture to 3/4 c boiling water in a saucepan.
   Reduce heat and stir.

   What happens?

   ____

   ____

- Conduct experiments
- Participate in group activities
- Collect/record information

Mixture 2: Corn Starch

Put 1/12 T corn starch in a bowl.
Add 1/4 c cold water.
Mix thoroughly.
Add mixture to 3/4 c boiling water in a saucepan.
Reduce heat and stir.

What happens?

Mixture 3: Egg

Break egg into a bowl and beat.
Pour 1/4 c of hot water into the beaten egg, stir constantly.
Pour the diluted mixture into 3/4 c boiling water.
Continue to sir over low heat. Do not boil.

What happens?

2. Complete the Thickening Agent Observation Chart.
3. When would you use the different thickeners?
4. What did you learn?

THICKENING AGENT OBSERVATION CHART

	Texture	Color	Consistency	Clarity	Thickness
Flour					
Corn starch					
Egg					

Name ______________________________ Score __________

OBJECTIVE 4

Test growing conditions for yeast.

INTRODUCTION

Yeast is a living organism that eats and grows if given the proper environment. It is very important to feed yeast the proper food and allow the yeast to grow at the proper rate and length of time to produce a high quality product. This experiment will allow you to see what factors affect the growth of yeast. You will also be able to determine which environment is best for growth.

EQUIPMENT AND SUPPLIES

- Ingredients: Dry yeast packages (6), salt, sugar, vinegar (acid), water

- Glasses (6)
- Heating pad or plate
- Heat source
- Labels (self-sticking)
- Marking pen
- Measuring cup
- Measuring spoon
- Pan (to heat water)
- Pen or pencil
- Thermometer

INSTRUCTIONS

- Follow written instructions

1. Label each glass as follows:

   Glass A: nothing

   Glass B: 1 t sugar

   Glass C: 1 t sugar + 1/4 t salt

   Glass D: 1 t sugar + 1 t salt

   Glass E: 1 t sugar + 1/4 t vinegar

   Glass F: 1 t sugar + 1 t vinegar

- Use standard grammar, spelling, and capitalization
- State ideas clearly
- Use complete sentences
- Complete forms and records

- Use English and metric measures
- Make measurements

- Conduct experiments

- Collect/record information
- Draw conclusions

2. Heat 3 c of water to 90°F-100°F.
3. Pour 1/2 c water into each of the labeled glasses.
4. Add 1 package dry yeast to each glass.
5. Add the appropriate ingredients to each labeled glass. Check each label for the ingredients needed for each glass.
6. Place the glasses on the heating pad.
7. Observe the reactions. Notice the odor and consistency of each mixture.
8. Measure the height of the solutions with a ruler at 2 and 4 minutes. Record your results on the Yeast Growth Chart.
9. Answer the following questions:
   a. What effect did plain water have on the yeast? Why?
   b. In which environment did the yeast grow best?
   c. What effect does acid have on yeast? Why?
   d. What effect does salt have on yeast? Why?

e. Why did the experiment use a heating pad for heat instead of a hotter heat source?

____

____

f. What conclusions can you make about yeast action?

____

____

YEAST GROWTH CHART

Glass	Add	Observations	
		2 min	4 min
A	nothing		
B	1 t sugar		
C	1 t sugar + 1/4 t salt		
D	1 t sugar + 1 t salt		
E	1 t sugar + 1/4 t vinegar		
F	1 t sugar + 1 t vinegar		

APPLYING FOOD SCIENCE PRINCIPLES

Name ________________________________ Score __________

OBJECTIVE 7

Demonstrate the role of enzymes in food preparation.

INTRODUCTION

Meat consists of muscle tissue, connective tissue, fat and bone. Muscle tissue is composed of fibers held together by connective tissue. Connective tissue contains protein called collagen which is tough and elastic. Collagen can be broken down by commercial meat tenderizers which contain plant enzymes (from green papayas, figs, or pineapples). These enzymes break down the tissue. Meat can also be tenderized mechanically by pounding it with a special mallet. In the following experiment, you will tenderize meat using a commercial tenderizing agent and compare it to meat that is mechanically tenderized and meat that is not treated at all.

EQUIPMENT AND SUPPLIES

- Ingredients: Round steak (lean, 8 oz., cut in thirds), tenderizing agent (dry, 1 package)

- Broiler
- Broiling rack and pan
- Cutting board
- Fork (1, metal)
- Forks (plastic)
- Knife (sharp for cutting raw meat)
- Knife (for cutting cooked meat)
- Labels (6, self-sticking)
- Mallet
- Marking pen (non-toxic)
- Oven mit
- Paper plates (6)
- Paper towels
- Pen or pencil
- Tongs
- Toothpicks: green, red, and plain

INSTRUCTIONS

- Follow written instructions

- Use standard grammar, spelling, and capitalization
- State ideas clearly
- Use complete sentences
- Complete forms and records

- Conduct experiments

- Collect/record information
- Draw conclusions

1. Mark two labels with "control," two with "chemical," and two with "mallet."
2. Attach one label at the edge of each paper plate.
3. Wash the surface of the meat and pat dry with paper towel. Discard towel.
4. Place the meat on a cutting board and slice it into thirds. Place one third of the meat on a paper plate, one third on a cutting board, and one third on a broiler rack.
5. Sprinkle packaged tenderizer according to package directions on the piece of meat on the plate labeled "chemical."
6. With a fork, poke several dozen evenly distributed holes in the meat so that the tenderizer can soak in.
7. Place the tenderized meat next to the control meat on the broiler rack. Put a green toothpick in the side of the tenderized meat. Place a plain toothpick in the side of the control meat.
8. Pound the meat on the cutting board with the mallet until it is about 3/8 inch thick. Place a red toothpick in the side of the pounded meat.
9. Place the pounded meat on the broiler rack next to the other pieces.
10. Discard used plates.
11. Cook the meat until done (about 3 minutes each side).

    ☑ **NOTE:** Cooking times will vary. Ask your instructor and adjust accordingly.

12. Remove the pan from the oven with an oven mit.

⚠ **NOTICE:** The broiler pan will be extremely hot. Take care not to burn yourself or others!

---

13. Transfer the meat to clean, labeled plates. Match the toothpick color with the appropriate plate.
14. Cut samples from each piece of meat with a fork. Record your observations on the Tenderization Observation Chart.
15. Cut samples from each piece with a knife. Record your observations on the chart.

16. Cut equal size pieces from each type of meat. Count the number of times you have to chew each piece until it dissolves. Record the number on the chart.

17. Cut one more sample from each type of meat. Taste each piece, paying attention to the flavor and texture. Record your observations on the chart.

18. Describe the appearance of each meat sample. Record your observations on the chart.

19. Clean your work area and clean and put away your equipment.

20. Answer the following questions:

    a. Did you notice any difference in appearance?

    ____

    ____

    b. Which meat was more tender?

    ____

    ____

    c. Which meat had the best flavor and texture?

    ____

    ____

    d. Which piece took the longest to chew? Why?

    ____

    ____

    e. What conclusions can you draw from this experiment?

    ____

    ____

TENDERIZATION OBSERVATION CHART

OBSERVATIONS	CONTROL	CHEMICAL	MALLET
TOOTHPICK COLOR	Plain	Green	Red
FORK TEST			
KNIFE TEST			
CHEW TEST			
TEXTURE			
FLAVOR			
APPEARANCE			

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ASSIGNMENT SHEET 5

APPLYING FOOD SCIENCE PRINCIPLES

5

Name ______________________________ Score __________

OBJECTIVE 9

Compare the effects of cooking using various methods.

INTRODUCTION

Using a microwave oven requires different cooking methods than conventional cooking. Cooking time is especially important; with microwave cooking, a dish can be ruined in a very short time. Overcooked foods may become hard, tough and chewy. In this experiment, you will cook broccoli four different ways using conventional and microwave methods.

EQUIPMENT AND SUPPLIES

- Ingredients: Fresh broccoli (2 lbs.), water

- Covered dish (microwavable, 1 qt.)
- Covered sauce pan (1 qt.)
- Cutting board
- Fork
- Knife (sharp)
- Labels (self-sticking)
- Marking pen (waterproof and non-toxic)
- Measuring cup (for liquids)
- Paper plates
- Pencil or pen
- Timers (2)
- Tongs

INSTRUCTIONS

- Follow written instructions

1. With a marker, write "Range 12," "Range 20," "Micro 7," and "Micro 14" on the self-sticking labels and attach these to the rims of four paper plates.

2. Clean the broccoli thoroughly. Cut off tough parts of the stalk.

3. Pour 1/2 c water into the sauce pan and bring to a boil.

4. Place half of the broccoli in the sauce pan and cover. Tilt the cover so it is slightly open. Simmer for 12 minutes.

- Use standard grammar, spelling, and capitalization
- State ideas clearly
- Use complete sentences
- Complete forms and records

- Use English and metric measures
- Make measurements

- Conduct experiments

- Collect/record information
- Draw conclusions

5. Using tongs, remove half of the broccoli from the pan and put it on the plate labeled "Range 12."

6. Continue to cook the rest of the broccoli in the covered saucepan for 8 minutes more. While the broccoli is cooking, record the following information about the "Range 12" sample on the Cooking Methods Observation Chart:

   a. Observe the color of the sample. Describe the color of the sample in the "Color" row on the chart.

   b. Cut the sample into small, bite-size pieces. Observe their texture. Describe the texture of the sample in the "Texture" row on the chart.

   c. Put one piece of the sample in your mouth and chew it. Describe the flavor and the texture of the sample in the "Flavor" row on the chart.

7. Remove the remaining broccoli and place it on the plate labeled "Range 20." Complete the Cooking Methods Observation Chart for the "Range 20" sample.

8. Place the remaining uncooked broccoli on the microwavable dish.

9. Add 1/2 c water and cover.

10. Cook on high power for 7 minutes, rotating the dish after 3 1/2 minutes.

11. Remove half the broccoli and place it on the plate labeled "Micro 7."

12. Continue to microwave the remaining broccoli for 7 minutes more, turning the dish halfway through the cooking time. While the broccoli is cooking, complete the Cooking Methods Observation Chart for the "Micro 7" sample.

13. Remove the broccoli and place it on the plate labeled "Micro 14." Complete the Cooking Methods Observation Chart for the "Micro 14" sample.

14. Answer the following questions:

    a. Which sample has the most color?

    ____

    ____

b. Which sample has the best texture?

____

____

c. Which sample has the best flavor?

____

____

d. Did you notice any differences between the microwaved broccoli and the broccoli cooked in the conventional way?

____

____

COOKING METHODS OBSERVATION CHART

CHARACTERISTICS	MICROWAVE 7 min.	MICROWAVE 14 min.	RANGE 12 min.	RANGE 20 min.
COLOR				
TEXTURE				
FLAVOR				

APPLYING FOOD SCIENCE PRINCIPLES

Name ______________________________ Score __________

OBJECTIVE 11

Determine the pH of food items.

INTRODUCTION

The pH value is important when examining food products. The pH value of a food indicates how acid or basic (alkaline) the food is, which influences taste. Testing the pH value requires a numerical scale ranging from 1.0 (very acid) to 14.0 (very alkaline). pH values between 1.0 and 7.0 display acid properties. Alkaline properties are associated with the values between 7.0 and 14.0. A reading of 7.0 is neutral. A small difference in the pH value represents a large difference in the degree of acidity. Each whole step (from one value to the next) represents a tenfold change in acidity. (For example, a food with a pH of 5.0 is ten times more acidic than one with a pH of 6.0.) In this experiment, you will test the pH in some common foods.

EQUIPMENT AND SUPPLIES

- Solutions: Apple juice, buttermilk, cream of tartar (dissolved in tap water), deionized water, egg white, lemon juice, lemon-lime soda, milk, mixture of test tubes 3 and 4, molasses (dissolved in tap water), powdered orange drink (dissolved in tap water), sodium bicarbonate (dissolved in ionized water), tap water, vinegar (5% acetic acid)

- Labels (self-sticking)
- Marking pen (waterproof)
- Pen or pencil
- pH indicator paper
- Test tubes (4)
- Test tube rack

INSTRUCTIONS

1. Fill 13 test tubes half full with each of the 13 solutions listed on the pH Observation Chart.

   ☑ **NOTE:** Test tube number 14 will be filled after all of the others have been filled, tested, and recorded.

2. Label each test tube with the name of the solution it contains.

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3. Dip the pH paper into each solution, using a different paper for each solution.

4. Match the color of each pH paper to the chart provided by your instructor. Record your results on the pH Observation Chart in the appropriate spaces.

5. Combine the solutions in test tube 3 and test tube 4 in test tube 14. Mix thoroughly. Record the pH of the resulting solution on the Observation Chart for test tube number 14.

6. Answer the following questions:

   a. Which test tube numbers were acidic (pH between 1.0 and 7.0)?

   ____

   ____

   b. Which test tube numbers were basic (pH between 7.0 and 14.0)?

   ____

   ____

   c. Which test tube numbers were neutral (pH 7.0)?

   ____

   ____

   d. What happened when you mixed tubes 3 and 4? What is this process called?

   ____

   ____

   e. Is the chemical reaction described in (d) used in preparing foods? How?

   ____

   ____

f. What happened to the pH of the mixture of tube 3 and 4?

____

____

g. Does all tap water have the same pH?

____

____

pH OBSERVATION CHART

TEST TUBE NUMBER	SOLUTION	pH
1	tap water	
2	deionized water	
3	vinegar (5% acetic acid)	
4	sodium bicarbonate (dissolved in ionized water)	
5	egg white	
6	molasses (dissolved in tap water)	
7	buttermilk	
8	lemon juice	
9	cream of tartar (dissolved in tap water)	
10	lemon-lime soda	
11	apple juice	
12	milk	
13	powdered orange drink (dissolved in tap water)	
14	mixture of test tubes 3 and 4	

Name ______________________________ Score __________

OBJECTIVE 16 **Compare methods of preserving a food item.**

INTRODUCTION

Many products are available today in several forms. In general, the more labor used to make the product, the more expensive the product will be. Preservation methods affect the properties and the overall quality of a product. When you are deciding which form of a product to use, consider the amount of time you have, how you will use the food, and its cost. In this experiment, you will compare samples of fresh, canned, pouch canned, frozen, freeze-dried, and aseptically packaged orange juice. You will determine how the preservation method affects the flavor, texture, and appearance of the juice.

EQUIPMENT AND SUPPLIES

- Orange juice: fresh, canned, pouch canned, frozen (reconstituted), aseptically packaged

- Clear plastic cups (7, small)
- Labels (self-sticking)
- Marking pen
- Pen or pencil

INSTRUCTIONS

- Follow written instructions

- Use standard grammar, spelling, and capitalization
- State ideas clearly
- Complete forms and records

☑ **NOTE:** Your instructor will have prepared and labeled each container of juice with the preservation method and the unit cost. You will not be able to see these labels until after you have tasted and compared the samples. Each container will also be labeled with a letter to identify it during the taste test.

1. Mark each label with one of the following letters: A,B,C,D,E,F,G.

2. Attach one label to each paper cup.

3. Pour a small amount of each juice sample into the cup with the same label.

   EXAMPLE: Pour juice "A" into the cup labeled "A."

4. Fill one cup full of plain water.

- Conduct experiments

- Collect/record information
- Draw conclusions

5. Record your observations about each sample on the Orange Juice Comparison Chart:
   a. Consider one sample at a time.
   b. For each sample, first describe its appearance and color on the chart.
   c. Taste each sample one at a time, following each taste with a small sip of water. Describe each sample's texture and taste on the chart.
6. Rank each sample by its unit cost and guess the preservation method for each sample. Record your answers on the chart.
7. Check the hidden label for the actual preservation method and the unit cost of each sample. Record this information on the chart.
8. Answer the following questions:
   a. Was there a noticeable difference among the products?

      ____

   b. Which sample looked most like the fresh orange juice sample?

      ____

   c. Which sample tasted best? Please describe the best taste.

      ____

   d. Which sample had the same texture as the fresh orange juice sample?

      ____

   e. Which sample would you take on a picnic? Why?

      ____

   f. Which sample was the most expensive? Was it worth it? Please explain.

      ____

   g. Which sample was the best value? Please explain.

      ____

ORANGE JUICE COMPARISON CHART

					UNIT COST		PRESERVATION METHOD	
SAMPLE	APPEARANCE	COLOR	TEXTURE	TASTE	RANK	ACTUAL	GUESS	ACTUAL
A								
B								
C								
D								
E								
F								
G								

APPLYING FOOD SCIENCE PRINCIPLES

Name ______________________ Score __________

OBJECTIVE 18 **Analyze the effects of freezing on a food item.**

INTRODUCTION

Freezing is a method of food preservation that is quick and easy. It preserves the color, texture, taste, and nutrients of many foods. Freezing also prevents the growth of bacteria, molds, and yeasts, and slows enzyme action. Certain methods of preparing foods for freezing are necessary to obtain a high quality product. Failure to follow these methods may produce poor results. In this exercise, you will analyze the effects of freezing on several food items.

EQUIPMENT AND SUPPLIES

- Food items: Celery (2 stalks), corn on the cob (1 ear, medium size), ground beef (1/4 lb.), strawberries (1/2 pint), sugar, water

- Chef's knife
- Cooking spray (non-stick)
- Cutting board
- Freezer
- Freezer labels
- Freezer-safe containers with lids (3)
- Marking pen (waterproof)
- Measuring cups
- Measuring spoons
- Pan (shallow)
- Paper (waterproof and vapor-proof)
- Paring knife
- Pen or pencil
- Sauce pan (1 qt.)
- Skillet (small)
- Spatula (metal type)
- Spoon (large)
- Tongs

INSTRUCTIONS

- Follow written instructions

- Use standard grammar, spelling, and capitalization
- State ideas clearly
- Use complete sentences
- Complete forms and records

- Use English and metric measures
- Make measurements

- Conduct experiments

- Collect/record information
- Draw conclusions

Part 1: Freezing Corn

Day 1

1. Husk, de-silk, and wash one ear of corn. Cut off the ends of the ear.
2. Fill the sauce pan half full with water and bring to a boil.
3. Blanch the corn on the cob in boiling water for 9 minutes.
4. Cool immediately by putting the corn in ice water for 9 minutes. Drain well.
5. Put the corn in an airtight container, removing as much air as possible before sealing. Label the container with the product name and date. Freeze promptly.
6. Clean your work area and wash any utensils.

Day 2

7. Fill the sauce pan half full with water and bring to a boil.
8. Observe the corn immediately after removing it from the freezer. Notice the presence or absence of ice crystals, its color, its texture (described by how the texture appears), and its smell. Record your observations on the Freezing Observation Chart.
9. Cook the corn in the boiling water without thawing the corn.
10. When the corn is cooked, observe the corn. Notice its color, its texture (described by how the texture appears), and its smell. Record your observations on the Freezing Observation Chart.
11. Taste the corn. Notice its flavor and its texture (described by how the texture feels in your mouth). Record your observations on the chart.
12. Clean your work area. Wash and put away equipment and utensils.

Part 2: Freezing Celery

Day 1

1. Wash the celery in cold water and dry.
2. Remove leaves and cut the ends of the stalks.

3. Slice the celery into bite-size pieces.

4. Place the celery in an airtight container. Tap the container gently to pack the celery. Leave 1 inch between the celery and the container lid when the container is closed.

5. Wipe the container with a clean cloth and seal tightly. Label the container with the product name and the date. Freeze immediately.

6. Clean your work area. Wash and put away equipment and utensils.

Day 2

7. Observe the celery immediately after removing it from the freezer. Notice the presence or absence of ice crystals, its color, its texture (described by how the texture appears), and its smell. Record your observations on the Freezing Observation Chart.

8. Thaw the celery in the covered container.

9. When the celery is thawed, observe the celery. Notice its color, its texture (described by how the texture appears), and its smell. Record your observations on the Freezing Observation Chart.

10. Taste the celery. Notice its flavor and its texture (described by how the texture feels in your mouth). Record your observations on the chart.

11. Clean your work area. Wash and put away equipment and utensils.

Part 3: Freezing Fruit

Day 1

1. Carefully sort and wash the strawberries; do not soak them.

2. Place half the fruit in a shallow pan and set aside.

3. Place the other half of the fruit in an airtight container. Tap the container gently to pack the fruit without crushing it. Leave 1 inch between the strawberries and the container lid when the container is closed.

4. Wipe the container with a clean cloth and seal tightly. Label the container with the product name and the date. Freeze immediately.

5. Prepare the strawberries in the shallow pan for the sugar pack method of freezing. Sprinkle the fruit with sugar. Mix gently until the sugar is dissolved and forms a syrup.

6. Carefully pack the fruit into airtight containers. Gently tap the container to pack the fruit without crushing it. Leave 1 inch between the strawberries and the container lid when the container is closed.

7. Wipe the container with a clean cloth and seal tightly. Label the container with the product name and the date. Freeze immediately.

8. Clean your work area. Wash and put away equipment and utensils.

Day 2

9. Observe the fruit immediately after removing it from the freezer. Notice the presence or absence of ice crystals, its color, its texture (described by how the texture appears), and its smell. Record your observations on the Freezing Observation Chart.

10. Thaw both the sugar-packed fruit and the dry-packed fruit in the covered container.

11. When the fruit is thawed, observe the fruit (both sugar-packed and dry-packed). Notice its color, its texture (described by how the texture appears), and its smell. Record your observations on the Freezing Observation Chart.

12. Taste the fruit (both sugar-packed and dry-packed). Notice its flavor and its texture (described by how the texture feels in your mouth). Record your observations on the chart.

13. Clean your work area. Wash and put away equipment and utensils.

Part 4: Freezing Fresh Meat

Day 1

1. Unwrap the meat from its original packaging.

2. Rewrap the meat in moisture- and vapor-proof paper. Get as much air out of the package as possible.

3. Seal the package and label it with the product name, weight, and date.

4. Freeze immediately.

5. Clean your work area. Wash and put away equipment and utensils.

Day 2

6. Remove the meat from the freezer. Place it on a clean plate.

7. Observe the meat before thawing it. Notice the presence or absence of ice crystals, the color of the meat, its texture (described by how the texture appears), and its smell. Record your observations on the chart.

8. Thaw the meat in the refrigerator overnight until thawed, or thaw in a microwave oven.

9. Unwrap the meat. Observe the condition of the raw meat. Notice the color, smell, and texture (dry or not dry). Form the meat into a patty and cook it in a skillet over medium heat until the meat is no longer pink on the inside.

10. Transfer the meat to a plate.

11. Observe the cooked meat. Notice the color of the meat, its texture (described by how the texture appears), and its smell. Record your observations on the chart.

12. Cut the meat into bite-size pieces. Taste the meat. Notice its flavor and its texture (described by how the texture feels in your mouth). Record your observations on the chart.

13. Clean your work area. Wash and put away equipment and utensils.

14. Answer the following questions:

    a. Was the quality of the corn affected by freezing? If so, please describe and explain why you think it was affected.

    ____

    ____

    b. Was the quality of the celery affected by freezing? If so, please describe and explain why you think it was affected.

    ____

    ____

c. Was the quality of the fruit affected by freezing? If so, please describe and explain why you think it was affected.

____

____

d. Which had a better color and flavor: the sugar-packed or the dry-packed strawberries?

____

____

e. Was the quality of the meat affected by freezing? If so, please describe and explain why you think it was affected.

____

____

f. Did the meat develop freezer burn? Why or why not?

____

____

FREEZING OBSERVATION CHART

	CORN	CELERY	STRAWBERRIES		GROUND BEEF
			Sugar-Packed	Dry-Packed	
ICE CRYSTALS					
COLOR Frozen					
Cooked/ Thawed					
TEXTURE Frozen					
Cooked/ Thawed					
SMELL Frozen					
Cooked/ Thawed					
TASTE Flavor					
Texture					

ASSIGNMENT SHEET 9

Name ______________________________ Score __________

OBJECTIVE 20

Analyze the impact of surface area on cooking rates and results.

INTRODUCTION

The surface area of a solid object equals the sum of the areas of its faces (the surfaces that enclose the object). In this experiment, you will analyze the impact of surface area on cooking rates and results. To do this, you will use carrots that are cut into pieces of different sizes (different surface areas).

EQUIPMENT AND SUPPLIES

- Food items: Carrots (4, whole same size), water

- Chef's knife
- Cutting board
- Fork
- Labels (8, self-sticking)
- Marking pen (waterproof)
- Measuring cup
- Paper plates (4, small)
- Paring knife
- Pencil or pen
- Ruler
- Sauce pans with lids (4 same size)
- Spoon
- Timers (2)
- Tongs
- Toothpicks (long wood) or wood skewers (4)

INSTRUCTIONS

- Follow written instructions

1. Mark four labels as follows: 1/8", 1/2", 1", and 3".
2. Attach a label to each of the paper plates and to the handle of each of the sauce pans.
3. Wash and pare each of the carrots.

- Use standard grammar, spelling, and capitalization
- State ideas clearly
- Use complete sentences
- Complete forms and records

- Use English and metric measures
- Make measurements

- Conduct experiments

- Collect/record information
- Draw conclusions

4. Cut one carrot into 1/8-inch pieces. Cut the second carrot into 1/2-inch pieces. Cut the third carrot into 1-inch pieces. Cut the last carrot into 3-inch pieces.

5. Pour 1/2 c water into each sauce pan and bring to a boil with the lid on.

6. When the water boils, place the carrots into the appropriate pans (with matching labels) and cover with the lids.

7. Set one timer for 20 minutes. Set a second timer at 5-minute intervals. Observe the carrots at the 5-minute, 10-minute, 15-minute, and 20-minute marks. Record your observations on the chart.

8. Observe the carrots in each pan:

   a. Observe the color of the water in each sauce pan and the color of the carrots in each pan. Record your observations on the Surface Area and Cooking Rate Chart.

   b. Use toothpicks to test the carrots in each pan for "doneness." Depending on how easily the toothpick pierces the carrots, determine the degree of doneness: "uncooked," "slightly cooked," "cooked" or "overcooked." Record your observations on the chart.

9. Clean your work area. Wash and put away equipment and utensils.

10. Answer the following questions:

    a. What happened to the color of the water and the color of the carrots? Why?

    b. How long did it take to cook the largest pieces (3")?

    c. Which pieces softened first? Why?

d. Did a relationship exist between the size of the carrots and their cooking times? If so, what was the relationship?

____

____

e. What conclusions can you reach about preparing vegetables for cooking?

____

____

SURFACE AREA AND COOKING RATES CHART

SAMPLE	**5 MIN**	**10 MIN**	**15 MIN**	**20 MIN**
1/8" COLOR Water				
Carrot				
DONENESS				
1/2" COLOR Water				
Carrot				
DONENESS				
1" COLOR Water				
Carrot				
DONENESS				
3" COLOR Water				
Carrot				
DONENESS				

ASSIGNMENT SHEET 10

APPLYING FOOD SCIENCE PRINCIPLES

5

Name ______________________________ Score __________

OBJECTIVE 21

Analyze the impact of temperature on cooking rates and results.

INTRODUCTION

Many foods are eaten cooked. Cooking can enhance a food's flavor, color, and texture, improve its digestibility, and destroy microorganisms. However, overcooking is extremely destructive to foods. Heating foods too much or for too long can destroy vitamins and flavor. Cooking temperatures also affect cooking times: higher temperatures require less time, while lower temperatures require less time. In this experiment, you will study the effect of temperature on the cooking rate of potatoes.

EQUIPMENT AND SUPPLIES

- Food items: Potato (1), water

- Chef's knife
- Cutting board
- Pen or pencil
- Sauce pans (2 same size)
- Thermometers (2)
- Toothpicks (long wood) or wood skewers

INSTRUCTIONS

- Follow written instructions

- Use standard grammar, spelling, and capitalization
- State ideas clearly
- Use complete sentences
- Complete forms and records

1. Wash the potato without removing the skin.

2. Cut the potato into two cubes of equal size.

3. Pour 1 1/2 c water into each sauce pan. The water should be deep enough to completely cover the potato cubes. (Do not add the potato cubes yet.)

4. Heat one pan of water to 200°F, the other to 215°F.

5. Monitor the water temperature constantly. Keep the temperature constant by turning the heat down or removing the pan from the heat. Use the thermometers to check the temperature.

6. When the water temperature is stabilized, place one potato cube into each pan.

- Use English and metric measures
- Make measurements

7. Cook the cubes, checking for doneness every 2 minutes with the wooden skewer. Depending on how easily the toothpick pierces the potatoes, determine the degree of doneness: "uncooked," "slightly cooked," "cooked" or "overcooked."

- Conduct experiments

8. Record your observations on the Temperature and Cooking Rate Chart. When the skewer pierces the potato easily (when it is fully "cooked"), record the final time on the chart.

- Collect/record information
- Draw conclusions

9. When each potato cube is fully cooked and the information is recorded, turn off the burner and remove the pan from the stove. Follow this procedure for both pans.

10. Clean your work area. Wash and put away equipment and utensils.

11. Answer the following questions:

    a. What was the required cooking time for the potato cube in the 200°F water (time required for the cube to be fully "cooked")? For the potato cube in the 215°F water?

    ____

    ____

    b. What was the difference in cooking time between the two cubes?

    ____

    ____

    c. What are the reasons for the differences in cooking time?

    ____

    ____

TEMPERATURE AND COOKING RATE CHART

TIME (IN MINUTES)	DEGREE OF DONENESS	
	POTATO CUBE AT 200°F	POTATO CUBE AT 215°F
2		
4		
6		
8		
10		
12		
14		
16		
18		
20		
22		
24		
26		

JOB SHEET

APPLYING FOOD SCIENCE PRINCIPLES

5

Name ______________________________

OBJECTIVE 5

Bake a yeast bread product.

EQUIPMENT AND SUPPLIES

- Ingredients: Active dry yeast (1 package), 1 T sugar, 2/3 c nonfat dry milk, 1 T salt, 2 c warm water (110°F-115°F), 3 T oil, 5 1/2 to 6 1/2 c all-purpose flour
- Sauce pan
- Mixing bowl (large)
- Spoon (wood)
- Spatula (rubber)
- 2 - 1 lb. loaf pans
- Measuring cups
- Measuring spoons
- Cooling racks
- Plastic wrap
- Cloth towel (small)
- Thermometer

PROCEDURE

- Follow written instructions
- Use English and metric measures
- Make measurements
- Conduct experiments

	Yes	No
1. Ask your instructor to explain the straight dough method for baking bread.	____	____
2. Pre-heat oven to 350°F.	____	____
3. Grease loaf pans with oil.	____	____
4. Heat 2 c water in a sauce pan until the temperature reaches 110°F-115°F.	____	____
5. Put yeast, sugar, milk powder, salt and 3 cups of flour into a large bowl, add 1 c warm water (110°F-115°F), and stir.	____	____

- Master specific job task/procedure

	Yes	No
6. Add 1 c warm water (110°F-115°F) and oil; beat well for about 2 minutes with a wooden spoon.	____	____
7. Add 2 1/2 c flour.	____	____
8. Mix until the dough comes off the sides of the bowl and clings together in a ball.	____	____
9. Place the dough on a lightly floured board or pastry cloth, let stand for 5 minutes, then begin to knead. (If the dough is sticky, sprinkle it with a little flour, adding more as needed. See instructions on kneading.)	____	____
☑ **NOTE:** Do not use too much flour.		
10. Knead until smooth and silky (about 6 to 9 minutes).	____	____
11. Shape the dough into a ball and place it in a lightly greased bowl. Rotate so that all the sides of the dough are greased.	____	____
12. Cover loosely with plastic wrap and cloth towel; let rise in a warm place (80°F-85°F) until doubled (about 60 to 90 minutes).	____	____
13. Check dough by inserting two fingers into the dough; if an indentation remains, the dough is ready to punch down.	____	____
14. After the dough has doubled, punch it down (See instructions for punching down).	____	____
15. Grease two 9" X 5" bread pans with oil.	____	____
16. Divide the dough into halves. Let the dough rest for about 10 minutes.	____	____
17. Gently roll out the dough into rectangles slightly longer than the pans, making sure the thickness is even.	____	____
18. Shape the bread into loaves by folding the ends of the rectangles toward the center, allowing them to overlap a little. Seal the dough by pinching the ends and the center seam.	____	____

Yes No

19. Place the dough in pans seam side downward. Bake in a preheated oven for 35-45 minutes. ____ ____

20. Check the bread after 30 minutes. If it looks well browned, tap the loaf with your knuckle. The loaf should make a hollow sound. If it does not, put the loaf in the oven for five minutes more. Test it again. ____ ____

21. Remove the bread from the pans immediately and place on cooling racks. ____ ____

SKILL TEST RECORD

EVALUATOR'S COMMENTS

____

____

____

PRODUCT EVALUATION

Evaluator note: Rate the student on the following criteria by circling the appropriate numbers. Each criterion must receive a rating of "3" or higher to demonstrate student mastery. (See Key below.) A student who is unable to demonstrate mastery should review the material and submit another product for evaluation.

Criteria:

Bread is shaped into loaves	4	3	2	1
Bread is well browned	4	3	2	1
Loaf makes a hollow sound when tapped	4	3	2	1
Equipment and supplies cleaned and properly stored	4	3	2	1

AVERAGE RATING

Evaluator note: To obtain an average rating for the Competency Profile, total the points in Product Evaluation and divide by the total number of criteria. Circle the rating on the Key.

KEY

4 **Skilled** – Can perform job with no additional training.
3 **Moderately Skilled** – Has performed job during training program; limited additional training may be required.
2 **Limited Skill** – Has performed job during training program; additional training is required to develop skill.
1 **Unskilled** – Is familiar with process, but is unable to perform job.

EVALUATOR'S COMMENTS

____

____

____

OBJECTIVE SHEET

PROFILING FOOD PRODUCTS

6

INTRODUCTION

Agricultural food products have undergone tremendous changes in recent years. These changes have been a result of both increased technology and consumer demand. The changes in agricultural food products and labeling affect both agricultural producers and consumers.

FOCUS ASSIGNMENTS

Reading Comprehension
- Gain factual information
- Analyze cause and effect
- Draw conclusions

Language
- Use standard grammar, spelling, and capitalization
- State ideas clearly

Composition
- Use complete sentences

FOCUS ASSIGNMENTS

PREREADING:	Read the Handout "Careers in Agriculture."
WRITING:	List all of the careers that you can think of in the agricultural field which exist in your community.

UNIT OBJECTIVE

After completing this unit, you will show the following competencies by mastering the activities on the Assignment Sheets and by scoring at least 85% on the Written Test.

SPECIFIC OBJECTIVES

1. Identify the tender and less tender cuts of beef, pork, and lamb.
2. Distinguish among the quality grades of beef, lamb, pork, and poultry.
3. Distinguish between fish and shellfish.
4. Distinguish among common forms of fresh fish products.
5. List point-of-purchase nutrition information for raw meats, fish, and poultry.
6. Match forms of milk to their descriptions.
7. Evaluate selected dairy products. (Assignment Sheet 1)
8. Name the various parts of plants from which vegetables come.
9. Distinguish among ways in which fruits or vegetables are processed.
10. Identify types of grains.
11. Distinguish among types of flour by their uses.
12. Distinguish among natural and artificial sweeteners in foods.
13. Demonstrate the roles of sweeteners in cooking. (Assignment Sheet 2)
14. Profile a career involving agricultural food products and processing. (Assignment Sheet 3)

INFORMATION SHEET

PROFILING FOOD PRODUCTS

6

OBJECTIVE 1

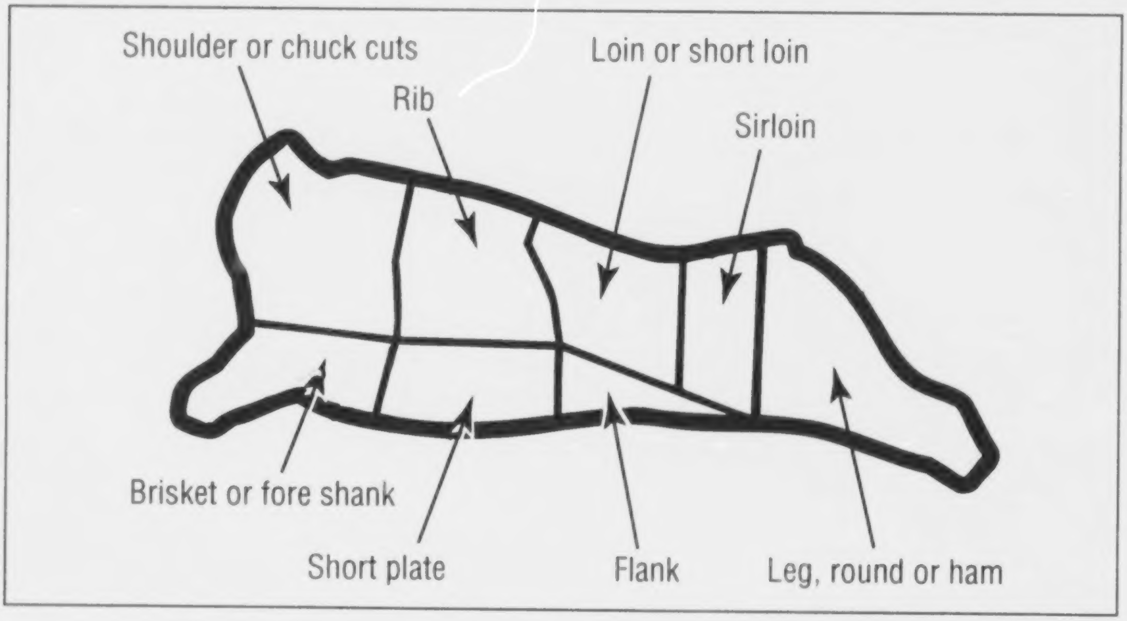
Required Activities/ Resources
– Transparency Master 1

Optional Activities/ Resources in Instructor's Guide

Identify the tender and less tender cuts of beef, pork, and lamb.

WORDS YOU SHOULD KNOW	
mutton	meat from older sheep
variety meats	also called organ meats; include the liver, kidney, heart, tongue, brains, tripe (stomach lining of beef), and sweetbreads (thymus gland)

FIGURE 1



☑ **NOTE:** The more tender cuts come from the less active muscles on the animal. The supply of these cuts is relatively small, since there are fewer less-active muscles. In addition, the more tender cuts are in demand. As a result, the tender cuts of beef, pork, and lamb are the most expensive cuts. Figure 1 shows the wholesale (or primal) cuts. The meat industry divides the carcass into these wholesale cuts according to the relative value of the retail cuts and the tenderness of the meat in the cut. Other cuts are made to separate lean areas from fat areas and thick-muscled areas from thin-muscled areas.

Beef

- Tender
    - Rib

      EXAMPLE: Rib roast, rib eye roast, rib eye steak, back ribs

    - Short loin

      EXAMPLE: T-bone steak, boneless top loin steak, tenderloin roast, porterhouse steak, tenderloin steak

    - Sirloin

      EXAMPLE: Sirloin steak, top sirloin steak

- Less tender
    - Round

      EXAMPLE: Round steak, top round roast, top round steak, boneless rump roast, bottom round roast, tip roast (cap off), eye round roast, tip steak

    - Foreshank and Brisket

      EXAMPLE: Shank cross cut, brisket (whole), brisket (flat half), corned brisket (point half)

    - Chuck

      EXAMPLE: Chuck eye roast, boneless top blade steak, arm pot roast, boneless shoulder roast, cross rib roast, mock tender, under blade pot roast, 7-bone pot roast, short ribs

    - Flank and Short Plate

      EXAMPLE: Flank steak, flank steak rolls, skirt steak

    - Other cuts

Pork

- Tender
    - Loin

EXAMPLE: Country-style ribs, center rib roast, sirloin roast, boneless sirloin, sirloin cutlet, tenderloin, blade roast, crown roast, blade chop, top loin chop, sirloin chop, back ribs, boneless blade roast, smoked loin chop, rib chop, loin chop, butterfly chop, top loin roast (double), center loin roast, Canadian-style bacon

  - Rib

  - Leg/Ham

    EXAMPLE: Leg cutlet, smoked ham center slice, canned ham, sliced ham, top leg (inside) roast, smoked ham, smoked ham shank portion, smoked ham rump portion, boneless smoked ham

- Less tender

  - Shoulder

    EXAMPLE: Blade roast, boneless blade roast, boneless arm picnic roast, blade steak, smoked shoulder roll, smoked ham hocks

  - Side

    EXAMPLE: Spareribs, sliced bacon

  - Other cuts

Lamb

- Tender

  - Rib

    EXAMPLE: Rib roast, rib chop, Frenched rib chop, crown

  - Loin

    EXAMPLE: Loin roast, loin chop, double loin chop

  - Sirloin

  - Leg

    EXAMPLE: Whole leg, short cut leg (sirloin off), shank portion roast, center leg, center slice, American-style roast, Frenched-style roast, boneless leg roast, hind shank, sirloin chop, boneless sirloin roast

- ☐ Shoulder

  EXAMPLE: Square-cut shoulder (whole), pre-sliced shoulder, boneless shoulder roast, neck slice, blade chop, arm chop

- Less tender
  - ☐ Shank
  - ☐ Neck slices
  - ☐ Breast cuts
  - ☐ Mutton

OBJECTIVE 2

Required Activities/
Resources
-- Discussion

Optional Activities/
Resources in
Instructor's Guide

Distinguish among the quality grades of beef, lamb, pork, and poultry.

WORDS YOU SHOULD KNOW	
marbling	the small flecks of fat throughout meat; adds flavor and juiciness

- **Beef** – Quality grades are based on age, marbling, color, external fat, firmness, and texture of the lean. In order from highest to lowest quality, grades are: Prime, Choice, Select, Standard, Commercial, Utility, Cutter, and Canner.

- **Lamb** – Quality grades are based on feathering (distribution of fat between the ribs), fat streaking in the flank, fullness and firmness of the flank, and conformation of the carcass. In order from highest to lowest quality, grades are: Prime, Choice, Good, Utility, and Cull.

- **Pork** – Quality grades are based on carcass size, marbling, color, firmness, and moistness or dryness of the meat. In order from highest to lowest grade, grades are: U.S. #1, U.S. #2, U.S. #3, U.S. #4, Utility, and Cull.

- **Poultry** – In order from highest to lowest quality, grades are: U.S. Grade A (complete without deformities), U.S. Grade B (moderate deformities, moderately fleshed, may be partially disjointed), and U.S. Grade C (abnormal, poorly fleshed, lacking in fat with broken bones, discoloration, and missing parts).

OBJECTIVE 3

Optional Activities/
Resources in
Instructor's Guide

Distinguish between fish and shellfish.

- **Fish (finfish)** – Have fins and a center spine with bones

- **Shellfish** – Have a shell and no spine or bones

- **Mollusk** – A shellfish enclosed in a rigid outer shell

  EXAMPLE: Clams, scallops, oysters

- **Crustaceans** – A shellfish with an outer segmented shell

  EXAMPLE: Crabs, shrimp, lobsters

OBJECTIVE 4

Optional Activities/
Resources in
Instructor's Guide

Distinguish among common forms of fresh fish products.

- **Blocks** – Boneless fillets put together in a frame, compressed slightly, and frozen into a solid fish form
- **Dressed** – Ready for cooking with head, tail, fins, scales, and insides removed
- **Fillet** – Sides of the fish cut away from the spine; usually boneless
- **Portions** – Fish blocks cut into various shaped serving pieces, then battered, breaded, packed and refrozen
- **Steak** – Cross-section slices of dressed fish
- **Sticks** – Fish blocks cut into individual serving pieces, then battered, breaded, packed and refrozen
- **Whole** – May appear just as it was caught, requiring scales and insides to be removed; or, may be cleaned and gutted, then canned or frozen with the bones

OBJECTIVE 5

Optional Activities/
Resources in
Instructor's Guide

List point-of-purchase nutrition information for raw meats, fish, and poultry.

☑ **NOTE:** Nutrition information is voluntary for many raw foods, including the 45 major cuts of meat and poultry, under the United States Department of Agriculture's (USDA) voluntary point-of-purchase program. Although voluntary, the programs for raw produce, meat, fish, and poultry carry strong incentives for retailers to participate. Food Safety and Inspection Service guidelines state that if voluntary compliance is found to be insufficient, the agencies may move to make it mandatory. The following information may be presented on posters, brochures, and other point-of-purchase materials as long as they are near the food. Information also can be provided on the package label.

- Name of the meat or poultry cut
- Serving size based on raw or cooked weight
- Calories per serving
- Calories from total fat per serving
- Amount per serving – by weight and by percentage of Daily Values – for total fat, saturated fat, cholesterol, sodium, total carbohydrates, and dietary fiber
- Amount by weight of sugars and protein
- Percentage of Daily Values per serving for vitamins A and C, and calcium and iron

OBJECTIVE 6

Optional Activities/ Resources in Instructor's Guide

Match forms of milk to their descriptions.

WORDS YOU SHOULD KNOW

cream	the fat of whole milk
homogenization	the process by which milk is forced under pressure through small openings to reduce the fat particles, resulting in particles so small that they stay evenly distributed throughout the milk (and will not rise to the top)
reconstitute	to return something to its original form

- **Acidophilus** – Milk to which a pure bacteria has been added to aid in digestion
- **Buttermilk** – Milk made from pasteurized skim milk which has been treated with bacteria
- **Concentrated milk** – Milk that has had its water content reduced; available in canned form (evaporated milk and sweetened condensed milk) and dried form (nonfat dry milk)
- **Cream** –
  - Coffee cream (light cream) – Cream that contains 18-30 percent fat

  - Sour cream – Cream that has been treated with lactic-acid bacteria and that contains 18 percent fat
  - Whipping cream (heavy cream) – Cream that contains at least 36 percent fat

- **Half-and-half** – A blend of milk and cream having 10-12 percent milkfat
- **Evaporated milk** – Canned milk from which about 60 percent of the water has been evaporated; may be reconstituted by adding an equal amount of water
- **Flavored milk** – Sweetened whole milk with chocolate flavor added (chocolate milk) and sweetened skim milk with chocolate flavor added (chocolate drink)
- **Fortified milk** – Milk to which vitamin D has been added

☑ **NOTE:** Most of the milk that you buy today is pasteurized, homogenized, and fortified.

- **Homogenized milk** – Milk that has been processed so that the cream will not rise to the surface
- **Ice cream** – A frozen milk product with a high fat and sugar content to make it creamy and give it a rich flavor
- **Low-fat milk** – Milk with less than 3.25 percent milkfat solids (or whatever the label declares: 2%, 1%, or 1/2%)
- **Pasteurized milk** – Milk that has been heated to destroy harmful bacteria
- **Skim milk** – Milk that has less than 1/2 percent milkfat solids
- **Sweetened condensed milk** – Canned concentrated milk made from sweetened whole milk
- **Whole milk** – Milk with 3.25 percent milkfat solids; usually homogenized
- **Yogurt** – A milk product made by fermenting partially skimmed milk with a special acid-forming bacteria

OBJECTIVE 7 **Complete Assignment Sheet 1.**

OBJECTIVE 8

Optional Activities/
Resources in
Instructor's Guide

Identify ways of classifying vegetables.

- Color
  - Green – broccoli, peas, brussels sprouts, asparagus
  - Red – radishes, beets, red peppers
  - White – cauliflower, potatoes
  - Yellow – carrots, squash (some), sweet potatoes
- Flavor
  - Mild flavor – green beans, green peas, corn, potatoes
  - Strong flavor – onion, cabbage, turnips, broccoli
- Part of plant
  - Flower – cauliflower, broccoli
  - Fruit – tomato, pepper, cucumber
  - Leaf – lettuce, spinach, cabbage, brussels sprouts
  - Root – beets, carrots, onions, potatoes, radishes
  - Seed – beans, corn, peas
  - Stem – asparagus, celery, mushrooms

OBJECTIVE 9

Optional Activities/
Resources in
Instructor's Guide

Distinguish among ways in which fruits or vegetables are processed.

☑ **NOTE:** While some fruits and vegetables are packaged whole, there are three ways to reduce the size of fruits and vegetables for better packaging: compression, impact, and shearing.

- **Dried** – Foods extracted or processed by compression, such as fruit leathers, and those processed by shearing forces.

  EXAMPLES: Banana chips, potato flakes, dried fruit, raisins

- **Juices** – Extracted by compression forces, this popular processing method consists of extraction, clarification (filtering), taking the air out, pasteurizing (killing enzymes), concentration, essence add-back, then canning, bottling, and freezing if desired.

- **Purees** – Foods extracted or processed with compression and shearing.

  EXAMPLES: Apricot nectar, baby foods, tomato sauce

- **Shelling** – Dehulling accomplished by exposure to infrared radiation (IR) for 15-65 seconds, and holding to cool from 0-20 minutes in a well-insulated container.

- **Shredding** – Processing using opposing blades to chop the fruits or vegetables.

  EXAMPLES: Coconut, carrots, coleslaw-style cabbage

- **Slicing** – Method of cutting fruits and vegetables, either in half, dicing into tiny cubes, or flaking; products can be canned, frozen, or dried.

- **Whole** – Fruits and vegetables which are peeled but are not reduced in size before processing.

OBJECTIVE 10

Required Activities/
Resources
– Discussion

Optional Activities/
Resources in
Instructor's Guide

Identify types of grains.

- **Barley** – Used in baby foods and for the production of malt

- **Corn** – Often used as a vegetable; also used to make breakfast cereals, cornmeal, grits, and hominy

- **Oats** – Used in breakfast cereals and as an ingredient in baked products; the bran has a high fiber content and possible cholesterol-lowering effect

- **Rice** – "Banana shaped" hull; available in three sizes – short grain, medium, and long grain

- **Rye** – Used mainly for bread flour; stronger flavor, low protein content; available in light or dark

- **Wheat** – Extremely hard hull; used for making flour, breakfast cereals, and pasta; highest protein value of any cereal grain

OBJECTIVE 11

Required Activities/
Resources
– Discussion

Distinguish among types of flour by their uses.

- **All-purpose flour** – A blend of hard and soft wheats which contain a moderate amount of gluten (protein); used for making breads, pastries, cookies, and cakes
- **Bread flour** – Milled from hard wheat and fairly high in protein; used mainly by bakeries
- **Cake flour** – Milled from soft wheats and fairly low in protein content; soft and silky; used for baked products, especially cakes
- **Durum flour** – Flour made from hard red wheat; high in protein; used for pasta
- **Enriched flour** – White flour to which the B vitamins thiamin, riboflavin, and niacin and the mineral iron have been added; calcium and vitamin D may also be added
- **Self-rising flour** – Flour to which a leavening agent (baking powder or baking soda) have been added
- **White flour** – Milled and sifted wheat; may be bleached or unbleached
- **Whole-wheat flour** – Milled wheat in which the natural parts of the wheat grain remain unaltered; has a coarser texture and nut-like flavor

OBJECTIVE 12

Optional Activities/
Resources in
Instructor's Guide

Distinguish among natural and artificial sweeteners in foods.

Natural

- **Dextrose** – Glucose found in sweet fruits and some vegetables
- **Fructose** – Fruit sugar found in ripe fruits, many vegetables, and honey
- **Lactose** – Sugar found in milk
- **Maltose** – Malt sugar found in cereal grains
- **Sucrose** – Can be processed into granulated sugar, found in sugar cane, sugar beets, some other vegetables, and many fruits

Artificial

- **Acesulfame K** – High intensity sweetener, is suitable for use in cooking and baking, has none of the drawbacks of saccharin
- **Aspertame** – High intensity sweetener, most widely used sugar substitute, breaks down when exposed to high heat for a period of time, not suitable for use in baked products
- **Saccharin** – High intensity sweetener, can be used in cooking and baking, has a bitter aftertaste, studies indicate that it causes cancer in laboratory animals

OBJECTIVE 13 **Complete Assignment Sheet 2.**

OBJECTIVE 14 **Complete Assignment Sheet 3.**

641

ASSIGNMENT SHEET 1

PROFILING FOOD PRODUCTS

6

Name ______________________________ Score __________

OBJECTIVE 7

Evaluate selected dairy products.

EQUIPMENT AND SUPPLIES

- 3 samples of the same type dairy product
- Pencil or pen
- Paper

INSTRUCTIONS

1. Choose a type of dairy product to evaluate.

   EXAMPLE: Cheese

2. Obtain three different samples of the same type of dairy product.

   EXAMPLE: American, Longhorn, and Swiss cheese

3. Gather each product and record the name, nutrition facts, and cost for each.

4. Evaluate the taste, aroma, and texture of each product.

5. Rank the products from the most to the least desirable using the Product Evaluation Form.

6. Does a relationship exist among taste, cost, and quality?

   ____

   ____

   ____

   ____

   ____

   ____

- Gain factual information
- Draw conclusions
- Locate resources
- Follow written instructions
- Use content area vocabulary

- Use standard grammar, spelling, and capitalization
- State ideas clearly
- Use complete sentences
- Take notes
- Complete forms and records

- Collect/record information
- Draw conclusions
- Evaluate results/outcomes

PRODUCT EVALUATION FORM

	Name of Product	Type of Product*	Size of Container	Cost per Serving **	Calories per Serving	Product Score ***
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						

* Note as IC (ice cream), IM (ice milk), SH (sherbet), or YO (yogurt or frozen yogurt).

** Calculate cost per serving by dividing cost per container by servings per container.

*** Score the samples as:

1. like very much
2. like
3. neutral (neither like nor dislike)
4. dislike
5. dislike very much

ASSIGNMENT SHEET 2

PROFILING FOOD PRODUCTS

6

Name ______________________________ Score __________

OBJECTIVE 13

Demonstrate the roles of sweeteners in cooking.

EQUIPMENT AND SUPPLIES

- Recipe
- Equipment and supplies appropriate for recipe
- Pencil or pen
- Paper

INSTRUCTIONS

- Draw conclusions
- React to written material
- Follow written instructions
- Use content area vocabulary

- Use standard grammar, spelling, and capitalization
- State ideas clearly

- Create a finished product
- Evaluate results/outcomes

1. Choose a recipe that calls for sugar or a natural sweetener. Attach a recipe copy to the Assignment Sheet.
2. Choose a sugar substitute to use in the recipe.

   ☑ **NOTE:** See the package for substitution guidelines.

3. Make one complete recipe using the sugar or natural sweetener.
4. Make one complete recipe using the chosen sugar substitute.
5. Sample both products.

Answer the following questions:

6. What sugar or natural sweetener was used? ______________
7. What sugar substitute was used? ______________
8. How did the products differ in texture? ______________

   ____

   ____

9. How did the products differ in taste? ______________

   ____

   ____

10. How did the products differ in calories?

11. Which product would you prefer to eat and why?

12. Was the product acceptable? What changes would you make?

ASSIGNMENT SHEET 3

PROFILING FOOD PRODUCTS

6

Name ______________________________ Score __________

OBJECTIVE 14

Profile a career involving agricultural food products and processing.

EQUIPMENT AND SUPPLIES

- Research material
- Pen or pencil
- Paper

INSTRUCTIONS

- Gain factual information
- Select useful resources
- Locate resources

- State ideas clearly
- Take notes

- Analyze personal occupational aptitudes/preferences
- Investigate employment prospects of a career field/occupation
- Investigate training requirements for a career field/occupation
- Investigate benefits of a career field/occupation
- Compare/evaluate career options

Part 1

Using a variety of resources such as government publications, trade journals, magazines and newspapers, personal interviews, etc., research the various careers available that relate to food products and processing. Select three careers that you might be interested in that could involve the agriculture industry. Categories from which careers may be chosen include:

- Production
- Processing
- Sales
- Supporting services
- Corollary activities

☑ **NOTE:** Corollary activities include such areas as farm credit, banking and finance, transportation, regulatory services, and government agencies and educational programs.

List the three careers of interest.

____

____

____

Part 2

Choose one of the above listed careers to profile. Answer the questions below:

1. Which career will be profiled? ______________________________

2. Why does this career interest you?

3. What requirements and special qualifications are needed for this career?

4. What do you think the job outlook will be for this career?

5. What salary range does the career offer?

6. What sources of information were used to complete this assignment?

OBJECTIVE SHEET

MAKING HEALTHY FOOD CHOICES

7

INTRODUCTION

What foods should people eat to stay healthy? The information presented in this unit will introduce you to the dietary guidelines and nutrition facts that, when followed, can help you make the wisest food choices for healthy living.

FOCUS ASSIGNMENTS

Reading Comprehension
- Gain factual information
- Analyze cause and effect
- Draw conclusions

Language
- Use standard grammar, spelling, and capitalization
- State ideas clearly

Composition
- Use complete sentences

FOCUS ASSIGNMENTS	
PREREADING:	Read one article or story from a magazine or newspaper that deals with healthy food choices.
WRITING:	List any guidelines or conclusions that the article or story presents for making personal food choices. Then, state whether you agree or disagree with the guidelines or conclusions. Explain your answer in a short paragraph.

UNIT OBJECTIVE

After completing this unit, you will show the following competencies by mastering the activities on the Assignment Sheets and by scoring at least 85% on the Written Test.

SPECIFIC OBJECTIVES

1. Discuss the relationship between good nutrition and good health.
2. State Dietary Guidelines for Americans.
3. State the Dietary Guidelines' recommendation for limiting fat and saturated fat.
4. Interpret the Food Guide Pyramid.
5. Compare the nutritional value of the major food groups.
6. Define serving sizes for the Food Guide Pyramid.
7. Interpret the "Nutrition Facts" label. (Assignment Sheet 1)
8. Profile nutritional needs over the life cycle.
9. Research the relationship between nutrition and wellness. (Assignment Sheet 2)
10. State healthy substitutes for specific foods.
11. Modify a recipe for a special situation. (Assignment Sheet 3)
12. Distinguish nutrition facts from fallacies.
13. Discuss the impact of lifestyle on nutrition.
14. Distinguish between eating disorders.
15. Analyze a daily diet for nutrient content. (Assignment Sheet 4)
16. Develop a personal nutrition and wellness plan. (Assignment Sheet 5)

INFORMATION SHEET

MAKING HEALTHY FOOD CHOICES

7

OBJECTIVE 1

Optional Activities/ Resources in Instructor's Guide

Discuss the relationship between good nutrition and good health.

WORDS YOU SHOULD KNOW	
cholesterol	a fat-like substance found in all animal foods and saturated fats; chemical found in blood, tissue, and digestive juices
fatty acids	the basic chemical units in fat; either saturated, monounsaturated, or polyunsaturated (depending on the amount of hydrogen they contain)
fiber	"roughage"; helps keep the digestive tract healthy; aids in digestion by moving food through the intestine; contained only in foods that come from plants, such as fruits, vegetables, whole-grain breads and cereals, dry beans and peas, nuts, and seeds
osteoporosis	a condition of lowered bone mass or density
saturated fat	a type of fatty acid in foods that are usually of animal origin (meat and dairy products) and that are also found in some vegetable fats (such as in coconut, palm, and palm kernel oil)
soluble	can be dissolved

- **Osteoporosis** – Low calcium intake is one risk factor for osteoporosis. Adequate calcium intake throughout life helps maintain bone health by increasing the amount of bone formed in the teens and early adult years. It also helps slow the rate of bone loss later in life.

- **Hypertension** – Hypertension (high blood pressure) is a risk factor for coronary heart disease and stroke death. High sodium intake levels can raise blood pressure. Diets low in sodium may help lower blood pressure and reduce related risks in many people.

  ☑ **NOTE:** Table salt is the most common source of sodium.

- **Cancer** – Diets high in fat increase the risk of some types of cancer, such as cancers of the breast, colon, and prostate. Low-fat diets reduce the risks of some cancers. Diets low in fat and rich in fiber-containing grain products, fruits, and vegetables may reduce the risk of some types of cancer.

- **Coronary heart disease** – Diets high in saturated fat and cholesterol increase blood cholesterol levels. As a result, such diets increase the risk of coronary heart disease. Diets low in saturated fat and cholesterol decrease the risk of coronary heart disease. Diets low in saturated fat and cholesterol and rich in fruits, vegetables, and grain products that contain fiber (particularly soluble fiber) may reduce the risk of coronary heart disease.

OBJECTIVE 2

Optional Activities/ Resources in Instructor's Guide

State Dietary Guidelines for Americans.

WORDS YOU SHOULD KNOW	
calorie	a unit by which food energy is measured; the amount of heat required to raise the temperature of 1 kilogram of water 1 degree Celsius
carbohydrates	chemical compounds made of the elements carbon, hydrogen, and oxygen that are converted by the body into glucose (a simple sugar) and glycogen (the storage form of carbohydrates)
complex carbohydrates	fiber or starches
minerals	elements which are used by the body in its regulatory functions and in forming some of its structures; become part of the body (bones, tissues, and fluids)

WORDS YOU SHOULD KNOW	
nutrients	a chemical substance in food that contributes to the proper functioning of the body
vitamins	chemical compounds that consist of carbon, oxygen, hydrogen, and nitrogen; help speed the chemical processes in the body without becoming part of or building any part of the body; do not provide energy

☑ **NOTE:** The Dietary Guidelines for Americans are guidelines for a healthful diet for persons two years of age or older. They were jointly developed by the United States Department of Agriculture and the Department of Health and Human Services. The Dietary Guidelines include the following:

- **Eat a variety of foods** to get the energy, protein, vitamins, minerals, and fiber you need for good health.

- **Maintain healthy weight** to reduce your chances of having high blood pressure, heart disease, a stroke, certain cancers, and the most common kind of diabetes.

- **Choose a diet low in fat, saturated fat, and cholesterol** to reduce your risk of heart attack and certain types of cancer. Because fat contains over twice the calories of an equal amount of carbohydrates or protein, a diet low in fat can help you maintain a healthy weight.

- **Choose a diet with plenty of vegetables, fruits, and grain products** which provide needed vitamins, minerals, fiber, and complex carbohydrates, and can help you lower your intake of fat.

- **Use sugars only in moderation.** A diet with lots of sugars has too many calories and too few nutrients for most people and can contribute to tooth decay.

- **Use salt and sodium only in moderation** to help reduce your risk of high blood pressure.

OBJECTIVE 3

Optional Activities/
Resources in
Instructor's Guide

Explain the Dietary Guidelines' recommendation for limiting fat and saturated fat.

- The Dietary Guidelines recommend that Americans limit fat in their diets to 30 percent of calories.

  EXAMPLE: If you eat 2200 calories per day, multiply 2200 by 0.30 (30%). The result is 660 calories maximum that may come from fat each day. Then, divide this number by 9 (the number of calories in each gram of fat). The result is 73 grams of fat per day. In other words, 73 grams of fat per day will provide 30% of your calories in a 2200-calorie diet.

- You will get up to half this amount of fat even if you choose the lowest fat choices from each food group and add no fat to your foods while preparing them or eating them.

- Sources of the additional fat needed in your daily diet are your choice: you may choose foods from the food groups that are higher in fat, use fat in cooking, or use fat at the table in the form of dressings, toppings, or spreads.

OBJECTIVE 4

Required Activities/
Resources
- Transparency Masters 1-3

Optional Activities/
Resources in
Instructor's Guide

Interpret the Food Guide Pyramid.

☑ **NOTE:** In 1992, the United States Department of Agriculture announced the Food Guide Pyramid. The Food Guide Pyramid (Figure 1) replaced the Basic Four Food Groups plan as suggested dietary guidelines. The Pyramid is an outline of what to eat each day. It is not a prescription, but a general guide to making choices.

- The Pyramid calls for eating a variety of foods each day. This will help you to get the nutrients you need as well as the number of calories needed to maintain a healthy weight.

- Foods in Levels 1-3 of the Pyramid represent the five major food groups. Each group provides some (but not all) of the nutrients needed each day. Foods in one group cannot replace those in another.

- Level 1 (the foundation) represents the Bread, Cereal, Rice, & Pasta Group — all foods from grains.

- Level 2 represents groups of foods that come from plants. These groups are the Vegetable Group and the Fruit Group. Most people need to eat more of these foods for the fiber, minerals, and vitamins they provide.

  ☑ **NOTE:** Count only 100% fruit juice as fruit.

- Level 3 represents groups of foods that come mostly from animals. One is the Milk, Yogurt, & Cheese Group. The other is the Meat, Poultry, Fish, Dry Beans, Eggs, & Nuts Group. These foods are important for calcium, iron, protein, and zinc.

  ☑ **NOTE:** Choose skim, no-fat, and non-fat milk products when available.

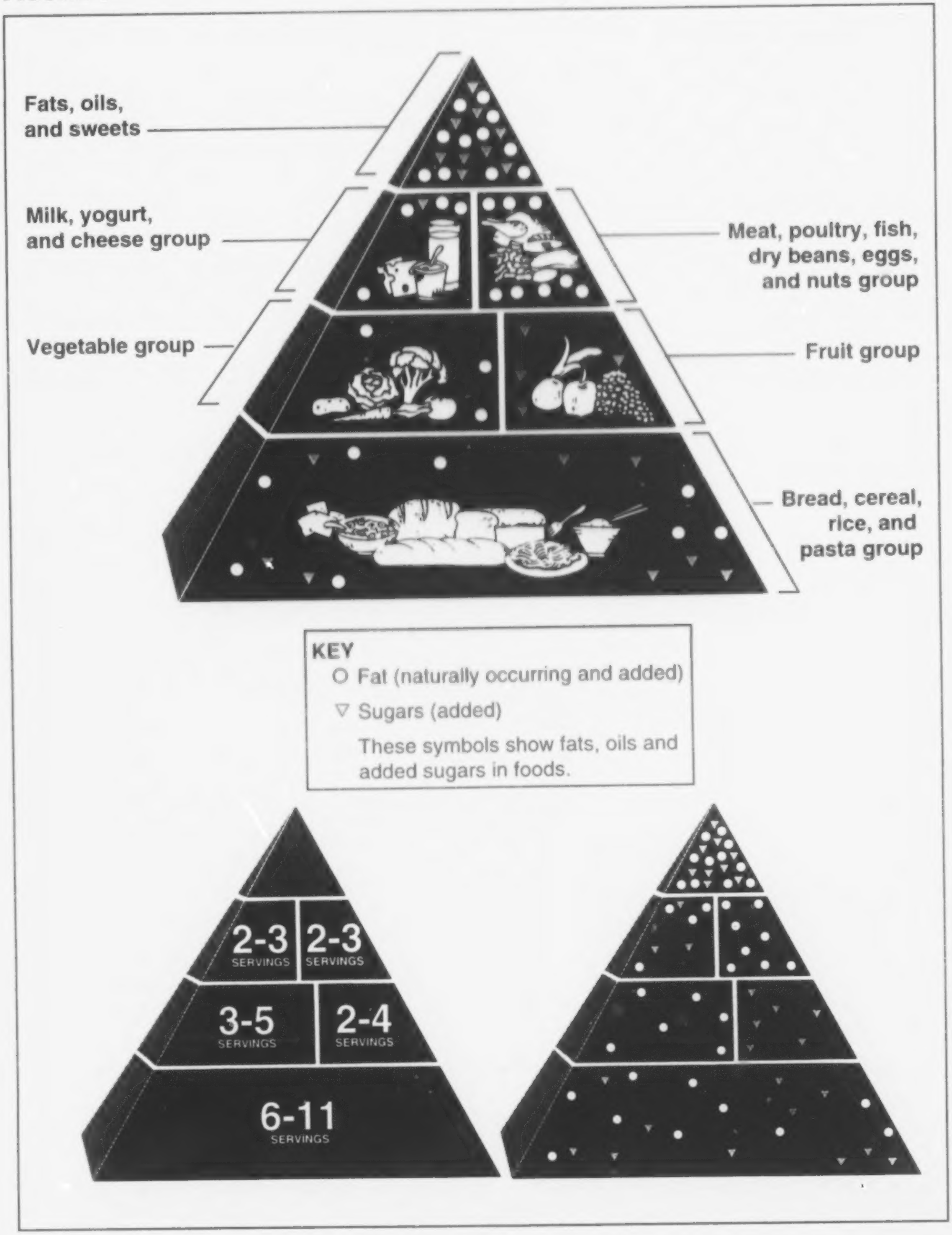
- Level 4 (the tip) represents Fats, Oils, and Sweets. It shows foods that provide calories and little else nutritionally. Most people should use these foods sparingly.

- As you move up from the foundation of the Pyramid:

  - the number of servings you should eat at each level goes down. Most people should eat at least the lowest number of servings from each group each day.

  - the amount of fat (naturally occurring and added) and added sugars in the foods at each level goes up. This is shown by circle and triangle symbols on the Pyramid. When choosing foods for a healthy diet, think about the fat and added sugars in your choices from the food groups in addition to any choices you make from the Pyramid tip.

FIGURE 1


Fats, oils, and sweets
Milk, yogurt, and cheese group
Meat, poultry, fish, dry beans, eggs, and nuts group
Vegetable group
Fruit group
Bread, cereal, rice, and pasta group
KEY
○ Fat (naturally occurring and added)
▽ Sugars (added)
These symbols show fats, oils and added sugars in foods.
2-3 SERVINGS
2-3 SERVINGS
3-5 SERVINGS
2-4 SERVINGS
6-11 SERVINGS

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OBJECTIVE 5

Optional Activities/
Resources in
Instructor's Guide

Compare the nutritional value of the major food groups.

- Bread, Cereal, Rice, and Pasta
  - ☐ Provide complex carbohydrates
  - ☐ Provide B vitamins, minerals, and iron
  - ☐ Are a good source of dietary fiber
- Vegetables
  - ☐ Provide vitamins A and C, folate, and minerals
  - ☐ Are naturally low in fat
  - ☐ Provide fiber in the diet
- Fruits
  - ☐ Provide important amounts of vitamins A and C and potassium
  - ☐ Are low in fat and sodium
- Meat, Poultry, Fish, Dry Beans, Eggs, and Nuts
  - ☐ Supply protein
  - ☐ Provide B vitamins, iron, and zinc
- Milk, Yogurt, and Cheese
  - ☐ Provide protein, vitamins A and D, and minerals
  - ☐ Are good sources of calcium
  - ☐ Are available in low-fat varieties

OBJECTIVE 6

Optional Activities/
Resources in
Instructor's Guide

Define serving sizes for the Food Guide Pyramid.

Bread, Cereal, Rice, and Pasta (Level 1, Foundation)		
1 slice of bread	1 ounce of ready-to-eat cereal	1/2 cup cooked cereal, rice, or pasta
Vegetables (Level 2)		
1 cup raw leafy vegetables	1/2 cup other vegetables, cooked or chopped raw	3/4 cup vegetable juice
Fruit (Level 2)		
1 medium apple, banana, orange	1/2 cup chopped, cooked, or canned fruit	3/4 cup fruit juice
Milk, Yogurt, and Cheese (Level 3)		
1 cup of milk or yogurt	1-1/2 ounces of natural cheese	2 ounces of processed cheese
Meat, Poultry, Fish, Dry Beans, Eggs, and Nuts (Level 3)		
2-3 ounces of cooked lean meat, poultry, or fish	1/2 cup cooked dry beans, 1 egg, or 2 tablespoons of peanut butter count as 1 ounce of lean meat	

OBJECTIVE 7

Complete Assignment Sheet 1.

OBJECTIVE 8

Optional Activities/
Resources in
Instructor's Guide

Profile nutritional needs over the life cycle.

Infancy

- High calorie and iron intake from human milk or commercial formula (until approximately 12 months of age)

  ☑ **NOTE:** Infants under 12 months of age should not drink cow's milk. An infant's body cannot process the protein in milk.

- Solid foods (at approximately six months of age)
- Whole milk (from approximately 12 months until age 2)

☑ **NOTE:** Whole milk provides the needed fat for children in this age group.

Childhood

☑ **NOTE:** Nutritional needs vary among children depending on age, activity level, and growth rate.

- Well-balanced meals and snacks
- High percentage of proteins, vitamins, and minerals to promote growth and development
- Sufficient calories to lead to a steady weight gain

☑ **NOTE:** Refined sugar and high-fat foods should be limited.

Adolescence

- More calories to meet growth spurt needs
- Increased supply of protein, minerals, and vitamins

Adulthood

- Energy needs decline due to a decrease in activity level
- Greater need for nutrient-dense foods

Older adults

- Energy requirements decrease in largest amounts
- Increased needs for protein, vitamin A, vitamin C, vitamin B-6, vitamin B-12, and calcium

☑ **NOTE:** In some cases, the body may not use nutrients as effectively or efficiently in older adulthood as in earlier stages of life.

OBJECTIVE 9

Complete Assignment Sheet 2.

OBJECTIVE 10

Optional Activities/
Resources in
Instructor's Guide

State healthy substitutes for specific foods.

☑ **NOTE:** Drastic changes in ingredients and substitutions will change the appearance, flavor, and texture of a recipe product. You may have to experiment several times with recipes and substitutions to get the results you want.

- Egg substitutes can take the place of whole eggs.

  ☑ **NOTE:** Egg substitutes are made mostly from real egg whites. They contain no egg yolks and are therefore cholesterol-free, fat-free, and lower in calories than whole eggs. They compare closely to whole eggs in most nutrient values, but can cost over three times as much.

- In many instances, two egg whites can substitute for one whole egg.
- Legumes, nuts, and wheat and soy protein products can substitute for meat, poultry, and fish. When these and other plant foods are supplemented with milk, milk products, and eggs, this diet poses no serious health problems.

  ☑ **NOTE:** This diet is called a lacto-ovo vegetarian diet. It should include enough foods from each food group to supply complementary proteins and the needed nutrients.

- Plain, unflavored yogurt can often substitute for sour cream.
- Milk can often substitute for cream in most sauces (but in a smaller amount).
- Dry cottage cheese may be used in place of ricotta cheese.
- Cooking oil can substitute for melted shortening (but not for a solid fat in baking).
- For added fiber and nutrients, whole-grain flour can substitute for half the amount of all-purpose flour.
- If a recipe calls for butter, its cholesterol and saturated fat content can be lowered by substituting all-vegetable shortening or margarine.

OBJECTIVE 11

Complete Assignment Sheet 3.

OBJECTIVE 12

Optional Activities/
Resources in
Instructor's Guide

Distinguish nutrition facts from fallacies.

WORDS YOU SHOULD KNOW

fad diet	a weight loss program that is popular for a short period of time
fallacy	a wrong or false idea

FALLACY	FACT
A fad diet is a nutritionally sound way to lose weight.	• Initial weight loss is mostly water loss. Most weight loss is quickly regained after fad dieting is over. • Fad diets do not contain all of the necessary nutrients. • Possible affects of fad diets include muscle weakness, fatigue, depression, interference with the body's normal functions, and/or death.
Diet pills are a safe and effective way to lose weight.	• No scientific proof exists of any benefit to most people from diet pills. • Diet pills are dangerous. People with high blood pressure, pregnant women, or women nursing babies should not use diet pills without first checking with a health care professional. • Diet pills purchased without a prescription contain one or more mild stimulants (such as caffeine). • People who take diet pills often regain weight faster than dieters who only temporarily change their eating habits.
Taking a multi-purpose vitamin every day is a healthy substitute for eating a variety of foods.	• Eating a variety of foods is the best way to get all the nutrients the body needs. • The body needs protein, carbohydrates, fiber, and essential fats which are not present in vitamin pills.
Eating a completely fat-free diet is a wise choice.	• Reducing (not eliminating) fat is the wisest path to follow. • The body needs some fat to store energy, to circulate fat-soluble vitamins, and to support cell walls.

FALLACY	FACT
Foods that are starchy in nature, like potatoes, pasta, and bread, are fattening.	• Starchy foods are generally low in fat and high in complex carbohydrates and fiber. • It is the fat often used in cooking starchy foods, in addition to the sauces and butter often served with them, that are fattening.
Large doses of vitamin C can help prevent and cure the common cold.	• No proven research exists that any amount of Vitamin C can prevent or cure colds. • Large doses of vitamin C have been linked to the formation of kidney stones, stomach illnesses, and other health problems.

OBJECTIVE 13

Optional Activities/
Resources in
Instructor's Guide

Discuss the impact of lifestyle on nutrition.

- Planning nutritional meals and snacks that are practical for your own lifestyle can have a great impact on your overall nutrition.
- Often, food choices (and your resulting nutrition) are influenced by people around you and by your lifestyle.
- Many people have food preferences and eating habits similar to those of the family which helped shape their food patterns as a child.
- Single parent families may have financial, time, and energy limitations which affect food preparation.
- Families with two working parents may have the money to buy a variety of food, but less time and/or energy for food preparation.
- Regional foods often affect nutrition, such as specialties developed from local crops and products, as well as foods of local ethnic groups. Society's mobility introduces people to a wider variety of foods. Exposure to new foods broadens food preferences.

OBJECTIVE 14

Optional Activities/
Resources in
Instructor's Guide

Distinguish between eating disorders.

WORDS YOU SHOULD KNOW	
diuretic	a drug that increases urination
laxative	a drug that causes elimination from the bowels

- **Anorexia nervosa**
  - Self-imposed starvation
  - Person is very fearful of being "fat" (even when the person is extremely underweight), eats little or nothing, has eating "rituals" (such as cutting food into little pieces or eating very slowly), exercises as much as possible to burn calories, and denies being hungry
  - Individual affected often loses 25 percent or more of body weight
  - Usually affects females
- **Bulimia**
  - Eating large quantities of food and eliminating the food; also called the binge/purge syndrome
  - Individual affected eats large amounts of food at one time, then eliminates the food by inducing vomiting, using laxatives, and/or using diuretics
  - Individual is often employed in work requiring low weight (such as models, jockeys, dancers)

☑ **NOTE:** The severe health problems associated with anorexia nervosa and bulimia can lead to problems with sleeping, physical growth, mental development, and relationships. They can even lead to death. Both are serious psychological and medical problems that require professional attention.

OBJECTIVE 15 **Complete Assignment Sheet 4.**

OBJECTIVE 16 **Complete Assignment Sheet 5.**

ASSIGNMENT SHEET 1

MAKING HEALTHY FOOD CHOICES

7

Name ____________________ Score __________

OBJECTIVE 7

Interpret the "Nutrition Facts" label.

EQUIPMENT AND SUPPLIES

- Current food labels
- Handout 1, "Nutrition Facts"
- Paper
- Pen or pencil

INSTRUCTIONS

Read Handout 1, "Nutrition Facts." Then, find three Nutrition Facts labels from foods in the following categories: packaged (prepared) foods such as pasta dinners or ready-to-eat frozen foods; canned vegetables, fruits, or beans; and convenience or snack items such as cookies or soft drinks. On a separate sheet of paper, answer the following questions for each of the three food items.

1. What is the serving size for each item? How many servings does each item contain?

Item 1: ____________________

____

Item 2: ____________________

____

Item 3: ____________________

____

2. What are the ingredients of each item?

Item 1: ____________________

____

Item 2: ____________________

____

- Gain factual information
- Follow written instructions
- Interpret graphics and symbols
- Use content area vocabulary
- Interpret abbreviations/acronyms

- Use standard gramma spelling, and capitalization
- State ideas clearly
- Use complete sentences

- Calculate with whole numbers
- Calculate with decimals
- Select/apply mathematical formula

- Collect/record information
- Draw conclusions

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Item 3:

3. How many calories are in one serving of each item? What percentage is this of a 2000-calorie daily diet?

Item 1:

Item 2:

Item 3:

4. How many of each item's calories are from fat? What percentage of the item's total calories are from fat?

☑ **NOTE:** Each gram of fat has 9 calories.

Item 1:

Item 2:

Item 3:

5. What Percent Daily Values of nutrients does each item provide?

Item 1:

Item 2:

Item 3:

6. Which food item represents a good nutritional choice? Please explain.

ASSIGNMENT SHEET 2

MAKING HEALTHY FOOD CHOICES

Name ______________________________ Score __________

OBJECTIVE 9

Research the relationship between nutrition and wellness.

EQUIPMENT AND SUPPLIES

- Paper
- Pen or pencil

INSTRUCTIONS

- Gain factual information
- Make generalizations
- Select useful resources
- Locate resources
- Follow written instructions
- Use content area vocabulary

- Use standard grammar, spelling, and capitalization
- State ideas clearly
- Use complete sentences
- Compose reports
- Create bibliography

Using the information presented in this unit, your textbook readings, and library and personal resources, research the relationship between nutrition and wellness.

On your own paper, report your findings. Originality and creativity are encouraged, but your report must include at least the following information:

- The role of the Dietary Guidelines for Americans in promoting nutrition and wellness
- How the Food Guide Pyramid and the new food label help put the Dietary Guidelines into action
- A current research project or current issue that is looking at new information and the relationship between nutrition and wellness
- A list of references used to write the report

☑ **NOTE:** Consult with your instructor for other requirements. This Assignment Sheet will be graded on the appropriate application of unit and resource information. Spelling and grammar usage will also be evaluated.

ASSIGNMENT SHEET 3

MAKING HEALTHY FOOD CHOICES

7

Name ______________________________ Score __________

OBJECTIVE 11

Modify a recipe for a special situation.

EQUIPMENT AND SUPPLIES

- Calculator (optional)
- Paper
- Pen or pencil

INSTRUCTIONS

1. Choose a special diet or nutritional situation that is of personal interest.
2. Choose a recipe that is a personal favorite, or one that looks like it would be a good recipe to try. Attach a copy of the recipe.
3. Applying the information presented in this unit and your reading assignments, modify the recipe with healthy food substitutions that would make the recipe healthier for a person on the special diet you have chosen. Attach a copy of your modified recipe.
4. What modifications did you make? How did those changes make the recipe healthier for someone following the special diet you chose? Please explain.

____

____

____

____

____

____

- Locate resources
- Follow written instructions
- Use content area vocabulary

- Use standard grammar, spelling, and capitalization
- Use complete sentences

- Converts units of measure

- Collect/record information
- Draw conclusions
- Identify/develop alternatives

ASSIGNMENT SHEET 4

MAKING HEALTHY FOOD CHOICES

Name ______________________________ Score __________

OBJECTIVE 15

Analyze a daily diet for nutrient content.

EQUIPMENT AND SUPPLIES

- Calculator (optional)
- Paper
- Pen or pencil

INSTRUCTIONS

- Gain factual information
- Select useful resources
- Locate resources
- Follow written instructions
- Use content area vocabulary
- Interpret abbreviations/acronyms

- Use standard grammar, spelling, and capitalization
- State ideas clearly
- Use complete sentences
- Complete forms and records

- Calculate with whole numbers
- Calculate with decimals
- Solve percent problems
- Use calculator for computation

Part 1

1. Record all of the foods you eat for one day on the form provided.

2. Total your results on the form.

Part 2 (optional)

1. Obtain the "Nutrition Facts" information for the foods you ate. For individual food items, keep the Nutrition Facts labels. For recipes, look for nutrition information in the recipe. For foods eaten in restaurants, ask the management for nutrition information for the menu items you chose.

   ☑ **NOTE:** If you cannot locate "Nutrition Facts" information for everything you have eaten, find the information for a similar or more common food.

2. Calculate the total number of calories you consumed that day, based on a 2000-calorie diet. (A 2000-calorie diet is the basis for the Percent Daily Values on the Nutrition Facts label.)

3. Calculate the number of calories from fat. Then, calculate the percentage of the day's total calories that came from fat.

4. Add up the amounts of nutrients you consumed. Express the amounts in terms of milligrams (mg), grams (g), and Percent Daily Values.

   ☑ **NOTE:** Nutrients can include total fat, cholesterol, sodium, total carbohydrates (including fiber and sugars), protein, vitamins, and minerals.

- Collect/record information
- Draw conclusions
- Identify/develop alternatives

5. Evaluate your daily diet. Answer the following questions:

   a. How many calories did you consume above or below 2000 calories?

   ____

   ____

   b. For what foods or food items were you unable to find nutrition information? For those items, what substitutes did you use?

   ____

   ____

   c. How well did you do in limiting fat according to the recommendation in the Dietary Guidelines for Americans? Please explain.

   ____

   ____

   d. Of which nutrients did you consume more than you needed? Of which did you consume less? For those nutrients that you did not eat enough of, what could you have eaten to make up the difference?

   ____

   ____

   e. What steps will you take tomorrow to improve your diet?

   ____

   ____

Foods	Amount Eaten	SERVINGS					
		Bread	Vegetable	Fruit	Milk	Meat	Fats, Oils, Sweets
TOTALS							

ASSIGNMENT SHEET 5

MAKING HEALTHY FOOD CHOICES

7

Name ________________________________ Score __________

OBJECTIVE 16

Develop a personal nutrition and wellness plan.

EQUIPMENT AND SUPPLIES

- Paper
- Pen or pencil

INSTRUCTIONS

1. On your own paper, design a personal nutrition and wellness plan. Use any resources you choose, including this unit. All plans must include at least the following information:
   - Personal nutrition goals, including deadlines for reaching them
   - Ways to achieve personal goals
   - How you will evaluate your progress
   - Resources used to design your plan
   - Personal fitness goals for added wellness
2. Respond to the following question in your plan: How must you change your food choices in order to realize your plan?
3. Decide how you will present your plan to the class. Examples include written reports, posters, charts, bulletin boards, or a combination of methods.
4. Present your plan as directed by your instructor. Ask your instructor about any additional requirements or guidelines for this assignment.

- Gain factual information
- Select useful resources
- Locate resources
- Use standard references
- Follow written instructions
- Use content area vocabulary

- Use standard grammar, spelling, and capitalization
- State ideas clearly
- Compose reports
- Create bibliography

- Collect/record information
- Identify critical elements/issues
- Define a problem
- Analyze/synthesize information
- Draw conclusions
- Identify/develop alternatives
- Evaluate alternatives
- Select an alternative
- Develop an action plan

OBJECTIVE SHEET

DEVELOPING CONSUMER SKILLS

8

INTRODUCTION

Food choices contribute directly to an individual's emotional and physical health. Problems such as fatigue, tooth decay, heart disease, and skin problems can result from poor food choices. There is a multitude of information available to consumers that can be used to make wise food choices. The information presented in this unit will assist you in developing consumer skills.

FOCUS ASSIGNMENTS

Reading Comprehension
- Gain factual information
- Analyze cause and effect
- Draw conclusions

Language
- Use standard grammar, spelling, and capitalization
- State ideas clearly

Composition
- Use complete sentences

FOCUS ASSIGNMENTS

PREREADING:	Read Handout 1, "Milestones in U.S. Food Labeling."
WRITING:	Write a short paragraph about food labeling. Do you have an opinion about food labeling? What do you think about the "Nutrition Facts" label?

UNIT OBJECTIVE

After completing this unit, you will show the following competencies by mastering the activities on the Assignment Sheets and by scoring at least 85% on the Written Test.

SPECIFIC OBJECTIVES

1. Classify information provided to consumers.
2. Interpret FDA regulations about the descriptive words used to label nutrient content. (Assignment Sheet 1)
3. List factors to consider in comparing food products.
4. Identify sensory characteristics used to evaluate food quality.
5. Locate taste receptors. (Assignment Sheet 2)
6. Calculate the unit price of food items. (Assignment Sheet 3)
7. Compare food products. (Assignment Sheet 4)
8. List guidelines for purchasing foods.
9. Identify cost-cutting strategies when purchasing and preparing foods.
10. Design a strategy for grocery shopping. (Assignment Sheet 5)
11. State strategies for making healthy choices while dining out.
12. Profile healthy choice alternatives for menu items. (Assignment Sheet 6)
13. Match consumer protection and information agencies to their descriptions.
14. Design a nutrition education campaign. (Assignment Sheet 7)

INFORMATION SHEET

DEVELOPING CONSUMER SKILLS

8

OBJECTIVE 1

Required Activities/
Resources
– Discussion

Optional Activities/
Resources in
Instructor's Guide

Classify information provided to consumers.

- **Open dating** – Date stamped on a food container to help consumers obtain foods which are fresh and wholesome; appears as either an expiration date which indicates the last day a product should be used, a freshness date which indicates the end of a product's quality peak, a pack date which tells when the food was processed, or a pull date which gives the last day the product should be sold
- **Unit pricing** – The cost of a product by weight or size; can be used for the comparison of brands and sizes; can be determined by dividing the item's price by the number of standard units in the package or container
- **Nutrition facts** – Information provided on the food label that is up-to-date with today's health concerns; a label that is easy to understand and use in planning healthy meals and snacks

OBJECTIVE 2

Complete Assignment Sheet 1.

OBJECTIVE 3

Optional Activities/
Resources in
Instructor's Guide

List factors to consider in comparing food products.

- Brand
- Intended use
- Nutrition facts data
- Open dating information
- Quality
- Quantity needed
- Unit price

OBJECTIVE 4

Optional Activities/
Resources in
Instructor's Guide

Identify sensory characteristics used to evaluate food quality.

- Appearance
- Aroma (smell)
- Feel

☑ **NOTE:** Consider the feel and temperature by touch and the texture of the food in the mouth.

- Sound (when eating)
- Taste

OBJECTIVE 5

Complete Assignment Sheet 2.

OBJECTIVE 6

Complete Assignment Sheet 3.

OBJECTIVE 7

Complete Assignment Sheet 4.

OBJECTIVE 8

Required Activities/
Resources
– Video

Optional Activities/
Resources in
Instructor's Guide

List guidelines for purchasing foods.

You will see the video *Grocery Shopping Survival.* As you watch the video, write down the guidelines that are given in the video in the spaces below.

Before shopping:

1. ____
____

2. ____
____

3. ____
____

4. ____
____

At the store:

1. ______________________________

____

2. ______________________________

____

3. ______________________________

____

4. ______________________________

____

5. ______________________________

____

6. ______________________________

____

OBJECTIVE 9

Optional Activities/
Resources in
Instructor's Guide

Identify cost-cutting strategies when purchasing and preparing foods.

- Buy store brands and generic items.
- Buy in bulk or volume.
- Plan meals first, then make a shopping list.
- Read product labels.
- Shop store sales.
- Stock up on store specials.
- Use unit pricing to find best buys.
- Use master mixes.
- Use consumer coupons.

☑ **NOTE:** Many of the above strategies are beneficial only if you need the food item.

OBJECTIVE 10

Complete Assignment Sheet 5.

OBJECTIVE 11

State strategies for making healthy choices while dining out.

Required Activities/
Resources
– Video

Optional Activities/
Resources in
Instructor's Guide

📺 You will see the video *Nutrition in the Fast Lane.* As you watch the video, write down the strategies that are given in the video in the spaces below. Write as many as possible.

1. ______________________________
____

2. ______________________________
____

3. ______________________________
____

4. ______________________________
____

5. ______________________________
____

6. ______________________________
____

7. ______________________________
____

8. ______________________________
____

9. ______________________________
____

10. ______________________________
____

11. ____

____

12. ____

____

13. ____

____

14. ____

____

15. ____

____

OBJECTIVE 12

Complete Assignment Sheet 6.

OBJECTIVE 13

Optional Activities/ Resources in Instructor's Guide

Match consumer protection and information agencies to their descriptions.

- **Consumer Product Safety Commission (CPSC)** – Responsible for protecting the public from unsafe products
- **Federal Trade Commission (FTC)** – Responsible for truth in advertising and checking false advertising claims
- **Food and Drug Administration (FDA)** – Responsible for food-protection by checking the accuracy of food labels, making sure manufacturers include the required information, testing products to make certain they meet government standards, and issuing public warnings when hazardous products are found
- **United States Department of Agriculture (USDA)** – Inspects meat and poultry and sets grades to determine the quality based on taste, texture, and appearance to assure that the product is wholesome and safe for consumption

OBJECTIVE 14

Complete Assignment Sheet 7.

ASSIGNMENT SHEET 1

DEVELOPING CONSUMER SKILLS

8

Name ______________________________ Score __________

OBJECTIVE 2

Interpret FDA regulations about the descriptive words used to label nutrient content.

INTRODUCTION

With the publication of new food labeling regulations in January 1993, the Food and Drug Administration and the U.S. Department of Agriculture's Food Safety and Inspection Service (FSIS) address the problem of misleading nutrition claims and help reestablish the credibility of the food label. The regulations spell out which nutrient content claims are allowed and under what circumstances they can be used.

EQUIPMENT AND SUPPLIES

- Pencil or pen

INSTRUCTIONS

- Gain factual information
- Draw conclusions
- Make generalizations
- React to written material
- Use content area vocabulary

- Use standard grammar, spelling, and capitalization
- State ideas clearly
- Use complete sentences

Read the text "A Little Lite Reading" and answer the questions that follow in the spaces provided.

1. With the publication of new food labeling regulations in January 1993, what did the Food and Drug Administration and the United States Department of Agriculture's Food Safety and Inspection Service address?

____

____

2. If a product claims to be "free" of a nutrient, how much of that nutrient can be present?

____

____

3. How can a food meet the definition of "low?"

____

____

4. A claim of "very low" can be made only about ______________.

5. When used to describe the fat content of meat, poultry, seafood, and game meats, what does "lean" mean?

____

____

6. What term describes a meat that has less than 5 g of fat, less than 2 g of saturated fat, and less than 95 mg of cholesterol per serving and per 100 g?

____

____

7. If a product claims to be "high" in a nutrient, what does that mean to the consumer?

____

____

8. "Good source" means: ______________________________

____

9. Manufacturers who want to compare a nutritionally altered product with the regular product may make a relative claim – that is,

____

____

10. A serving of a food carrying the "more" claim must have what?

____

____

11. In reference to the term "light," a product may be "light in sodium" if:

____

____

12. Under FDA rules, a main dish must weigh at least 6 ounces and contain what?

13. Define "sugar free."

14. Define "fat free."

15. Define "cholesterol free."

16. Define "low sodium."

17. Define "high fiber."

18. When are implied claims allowed?

19. When can the word "fresh" be used?

20. When are manufacturers allowed to make a "healthy" claim?

A Little *Lite* Reading

NOTE: This text is from an article by Dori Stehlin in *Focus on Food Labeling*, an *FDA Consumer* Special Report, 1993.

"Low fat." "No cholesterol." "High in oat bran." "Light." And don't forget "lite."

Until now, many of these claims have been nothing more than advertising hype. The public has been misled with products like the "light" vegetable oil that was just light in color and the "lite" cheesecake that was just light in texture.

But with the publication of new food labeling regulations in January 1993, the Food and Drug Administration and the U.S. Department of Agriculture's Food Safety and Inspection Service (FSIS) address the problem of misleading nutrition claims and help reestablish the credibility of the food label. The regulations spell out which nutrient content claims are allowed and under what circumstances they can be used.

There are 11 core terms:

- free
- low
- lean
- extra lean
- high
- good source
- reduced
- less
- light
- fewer
- more

Let Freedom Ring

The new regulations allow manufacturers the option to use the following synonyms for the term "free":

- without
- trivial source of
- negligible source of
- dietarily insignificant source of
- no
- zero

Whatever term the manufacturer chooses, the product must either be absolutely free of the nutrient in question or, if the nutrient is in the food, the amount must be dietetically trivial or physiologically insignificant.

For example, zero fat cannot be required because it is impossible to measure below a certain amount. So, the regulation will allow a fat-free claim on foods with less than 0.5 grams (g) of fat per serving, an amount that is physiologically insignificant even if a person eats several servings.

Foods that don't contain a certain nutrient naturally must be labeled to indicate that all foods of that type meet the claim. For example, a fat-free claim on applesauce would have to read "applesauce, a fat-free food."

"Free" also can be used in reference to saturated fat, cholesterol, sodium, sugars, and calories.

The Lowdown

A food meets the definition for "low" if a person can eat a large amount of the food without exceeding the Daily Value for the nutrient.

The synonyms allowed for "low" are:

- little
- few
- contains a small amount of
- low source of

"Low" claims can be made in reference to total fat, saturated fat, cholesterol, sodium, and calories.

A claim of "very low" can be made only about sodium.

Lean, Mean Eating Machine

"Lean" and "extra lean" can be used to describe the fat content of meat, poultry, seafood, and game meats. (FSIS regulates meat and poultry products; FDA oversees seafood and

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game meats.)

"Lean" means the food has less than 10 g of fat, less than 4 g of saturated fat, and less than 95 milligrams (mg) of cholesterol per serving and per 100 g. An example of a serving is 55 g (2 oz.) for fish, shellfish or game meat. Some "lean" foods are Spanish mackerel, bluefin tuna, and domesticated rabbit.

"Extra lean" means the food has less than 5 g of fat, less than 2 g of saturated fat, and less than 95 mg of cholesterol per serving and per 100 g. Examples of "extra lean" foods are haddock, swordfish, clams, and deer.

Percent Fat Free

FDA and FSIS believe that this claim implies, and consumers expect, that products bearing "percent fat free" claims contain relatively small amounts of fat and are useful in maintaining a low-fat diet. Therefore, products with these claims must meet the definition for low fat.

In addition, the claim must accurately reflect the amount of fat present in 100 g of the food. For example, if a food contains 2.5 g of fat per 50 g, the claim must be "95 percent fat free."

Take the High Road

"High" and "good source" focus on nutrients for which higher levels are desirable. To qualify for the "high" claim, the food must contain 20 percent or more of the Daily Value for that nutrient in a serving. Approved synonyms for high are "rich in" or "excellent source."

"Good source" means a serving contains 10 to 19 percent of the Daily Value for the nutrient.

Special Situations

"Standards of identity" define a food's composition and specify the ingredients it must contain. The government originally developed these standards to protect consumers from economic deception.

But some standards of identity require high amounts of nutrients that many consumers would like to avoid. For example, the standard for sour cream requires that the food contain 18 percent fat and the standard for mozzarella cheese requires it to be 45 percent fat. Before the new regulations, "reduced fat" sour cream or mozzarella cheese were required to have their own standards of identity or be called "imitation" or "substitute," names that consumers may perceive as negative.

The new regulations allow manufacturers to reduce the fat content of such products and call them "low fat" or "light," as appropriate, as long as the food is still nutritionally equivalent to the regular version. For example, sour cream can be called "light" as long as its fat content is reduced to 9 percent and it has vitamin A added to replace the amount lost when the fat was removed. If the company decides not to add the vitamin A, it must call the product "imitation light sour cream."

FDA is not allowing nutrient content claims on foods for infants and children under 2, unless explicit permission has been given.

FDA allows manufacturers to use the terms "unsweetened" and "unsalted" on these foods because these claims are considered to be about taste rather than nutrient content. However, current dietary guidelines do not call for limiting salt or sugar in the diets of children under 2. Therefore, FDA will not allow phrases that imply low or reduced amounts of sodium or calories, such as "no salt added" and "no sugar added," on these types of foods.

—D.S

Comparison Claims

Manufacturers who want to compare a nutritionally altered product with the regular product may make a relative claim—that is, "reduced," "less," "fewer," "more," or "light." The regular products, or reference foods, may be either an individual food or a group of foods representative of the type of food—for example, an average of three market leaders.

Restrictions on these claims and the reference foods include:

- A relative claim must include the percent difference and the identity of the reference food.
- "Reduced," "less" and "light" claims can't be made on products whose nutrient level in the reference food already meets the requirement for a "low" claim.
- Reference foods for "light" and "reduced" claims must be similar to the product bearing the claim—for example, reduced fat potato chips compared with regular potato chips.
- Reference foods for "less" and, in the case of calories, "fewer" may use dissimilar products within a product category—for example, pretzels with 25 percent less fat than potato chips.

At the other end of the spectrum, a serving of a food carrying a "more" claim (or claims of fortified, enriched or added) must have at least 10 percent more of the Daily Value for a particular nutrient (that is, dietary fiber, potassium, protein, or an essential vitamin or mineral) than the reference food that it resembles.

Let There Be Light/Lite

"Light" or "lite" can mean one of two things:

First, that a nutritionally altered product contains one-third fewer calories or half the fat of the reference food. If the food derives 50 percent or more of its calories from fat, the reduction must be 50 percent of the fat.

Second, that the sodium content of a low-calorie, low-fat food has been reduced by 50 percent.

The term "light in sodium" is allowed if the food has at least 50 percent less sodium than a reference food. If the food still does not meet the definition for "low sodium," the label must include the disclaimer "not a low-sodium food."

"Light" will be allowed to describe color or texture, provided qualifying information is included. However, names that have a long history of use, such as "light brown sugar," can still be used without qualifying information.

Meals and Main Dishes

Any product represented as or in a form commonly understood to be breakfast, lunch or dinner is subject to the special rules for meal products. Examples include frozen dinners, some pizzas, and shelf-stable items.

Under FDA rules, a main dish must weigh at least 6 ounces and contain at least two different foods from at least two of four specified food groups. (While FDA endorses the five food groups recommended in current dietary guidelines, the agency believes treating fruits and vegetables as separate groups in this situation would allow the inappropriate classification of a fruit and a vegetable product as a main dish.)

FDA requires a "meal" to weigh at least 10 ounces and have at least three different foods from at least two of the four specified food groups.

USDA defines a meal-type product as one weighing between 6 and 12 ounces per serving and containing ingredients from two or more of four specified food groups.

Claims that a meal or main dish is "free" of a nutrient, such as sodium or cholesterol, must meet the same requirements as those for individual foods.

A serving of a food carrying a "more" claim (or claims of fortified, enriched or added) must have at least 10 percent more of the Daily Value for a particular nutrient (that is, dietary fiber, potassium, protein, or an essential vitamin or mineral) than the reference food that it resembles.

"Low" claims can be made if the main dish or meal has:

- 120 calories or less per 100 g
- 140 mg sodium or less per 100 g
- 3 g fat or less and no more than 30 percent of calories from fat per 100 g
- 1 g saturated fat or less and no more than 10 percent calories from saturated fat per 100 g **or**
- 20 mg cholesterol or less per 100 g and no more than 2 g of saturated fat per 100 g.

Implied Claims

"Made with oat bran" and "no tropical oils" are examples of statements that may be implied nutrient content claims. Such claims are prohibited when they wrongfully imply that a food contains or does not contain a meaningful level of a nutrient. They are allowed if the food's nutrient content meets the definition for appropriate nutrient content descriptors that are implied by the claim.

For example, FDA considers statements about some types of oil as an ingredient, such as "made with canola oil" or "contains corn oil," to imply that the oil in the product is low in saturated fat. Therefore, to carry that claim, a food would have to meet the definition of "low saturated fat."

The statement "made only with vegetable oil" implies that because vegetable oil is used instead of animal fat, the oil component contributes no cholesterol and is low in saturated fat. In this case, the claim could be used only if the food meets the definition of "cholesterol free" and "low saturated fat."

And the statement "contains no oil" implies that the product contains no fat and thus is fat free. Such a claim on a product that contained another source of fat, such as animal fat, would be misleading. Therefore, this statement would be allowed only if the food is truly fat free.

Claims that imply a product contains a particular amount of fiber, such as "high in oat bran," can be made only if the food actually meets the definition for "high" fiber or "good source" of fiber, whichever is appropriate.

Statements that don't fall under the rules for nutrient content implied claims and therefore are still allowed are:

- those that help consumers avoid certain foods because of religious beliefs or dietary practices—for example, a "milk free" claim
- those about nonnutritive ingredients, such as "no preservatives" or "no artificial colors"
- those about ingredients that provide added value, such as "contains real fruit"
- statements of identity, such as "Colombian coffee" and "100 percent corn oil"

Fresh

Although not mandated by the Nutrition Labeling and Education Act of 1990, as regulations for the other nutrient content claims are, FDA has issued a regulation for the term "fresh." Under this regulation, "fresh" can be used only on a food that is raw, has never been frozen or heated, and contains no preservatives. (Irradiation at low levels is allowed.) "Fresh frozen," "frozen fresh," and "freshly frozen" can be used for foods that are quickly frozen while still fresh. Blanching (brief scalding before freezing to prevent nutrient breakdown) is allowed.

Other uses of the term "fresh," such as in "fresh milk" or "freshly baked bread," are not affected.

Healthy

Along with the final rule on nutrient content claims published last January, FDA and FSIS published proposed rules that would allow manufacturers to make a "healthy" claim on the label. Under FDA's proposal, "healthy" could be used if the food is low in fat and saturated fat and a serving does not contain more than 480 mg of sodium or more than 60 mg of cholesterol. USDA's proposal would allow the term if the food meets the definition for "lean" and contains no more than 480 mg of sodium per serving.

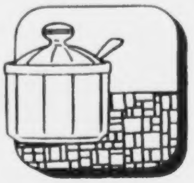
Final rules are expected in 1993.

Dori Stehlin is a member of FDA's public affairs staff.

Getting Specific

Here are examples of the meanings of some descriptive words for specific nutrients:

Sugar



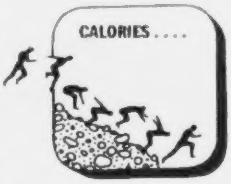
Sugar free: less than 0.5 grams (g) per serving

No added sugar, Without added sugar, No sugar added:

- No sugars added during processing or packing, including ingredients that contain sugars (for example, fruit juices, applesauce, or dried fruit).
- Processing does not increase the sugar content above the amount naturally present in the ingredients. (A functionally insignificant increase in sugars is acceptable from processes used for purposes other than increasing sugar content.)
- The food that it resembles and for which it substitutes normally contains added sugars.
- If the food doesn't meet the requirements for a low- or reduced-calorie food, the product bears a statement that the food is not low-calorie or calorie-reduced and directs consumers' attention to the nutrition panel for further information on sugars and calorie content.

Reduced sugar: at least 25 percent less sugar per serving than reference food

Calories



Calorie free: fewer than 5 calories per serving

Low calorie: 40 calories or less per serving and if the serving is 30 g or less or 2 tablespoons or less, per 50 g of the food

Reduced or Fewer calories: at least 25 percent fewer calories per serving than reference food

Fat

Fat free: less than 0.5 g of fat per serving

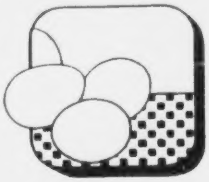
Saturated fat free: less than 0.5 g per serving and the level of trans fatty acids does not exceed 1 percent of total fat

Low fat: 3 g or less per serving, and if the serving is 30 g or less or 2 tablespoons or less, per 50 g of the food

Low saturated fat: 1 g or less per serving and not more than 15 percent of calories from saturated fatty acids

Reduced or Less saturated fat: at least 25 percent less per serving than reference food

Cholesterol



Cholesterol free: less than 2 milligrams (mg) of cholesterol and 2 g or less of saturated fat per serving

Low cholesterol: 20 mg or less and 2 g or less of saturated fat per serving and, if the serving is 30 g or less or 2 tablespoons or less, per 50 g of the food

Reduced or Less cholesterol: at least 25 percent less and 2 g or less of saturated fat per serving than reference food

Sodium

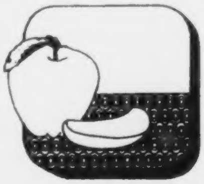
Sodium free: less than 5 mg per serving

Low sodium: 140 mg or less per serving and, if the serving is 30 g or less or 2 tablespoons or less, per 50 g of the food

Very low sodium: 35 mg or less per serving and, if the serving is 30 g or less or 2 tablespoons or less, per 50 g of the food

Reduced or Less sodium: at least 25 percent less per serving than reference food

Fiber



High fiber: 5 g or more per serving. (Foods making high-fiber claims must meet the definition for low fat, or the level of total fat must appear next to the high-fiber claim.)

Good source of fiber: 2.5 g to 4.9 g per serving

More or Added fiber: at least 2.5 g more per serving than reference food

ASSIGNMENT SHEET 2

DEVELOPING CONSUMER SKILLS

8

Name ______________________________ Score __________

OBJECTIVE 5

Locate taste receptors.

INTRODUCTION

Your taste buds are sensitive to combinations of four primary taste sensations: salty, sweet, sour, and bitter. Taste buds are distributed in many places on the tongue. In addition, the taste buds in certain "taste areas" on your tongue respond most strongly to foods having that taste sensation. For example, your tongue's maximum sensitivity to sweet-tasting foods happens in a certain taste area, while your tongue responds to sour-tasting foods in a different area. A food has a flavor when a variety of tastes are combined. The sense of taste is important to good nutrition. Without it, you might not choose all of the foods available for a healthy diet.

EQUIPMENT AND SUPPLIES

- Water
- Salt
- Sugar
- Lemon juice
- Mirror
- Pencil or pen
- Unsweetened baker's chocolate

INSTRUCTIONS

- Follow written instructions
- Use standard grammar, spelling, and capitalization
- State ideas clearly

Locate the different taste receptors on your tongue by experimenting with different flavors. Follow the steps below, then write a brief summary of your findings.

1. Wash your hands.
2. Place a small amount of salt on your tongue. Try to locate your salt-sensing taste buds. On the drawing on the next page, draw the places on your tongue where you could taste salt.
3. Rinse your mouth with water.
4. Place a small amount of sugar on your tongue. Try to locate your sweet-sensing taste buds. Draw the locations on the drawing.

- Collect/record information
- Draw conclusions

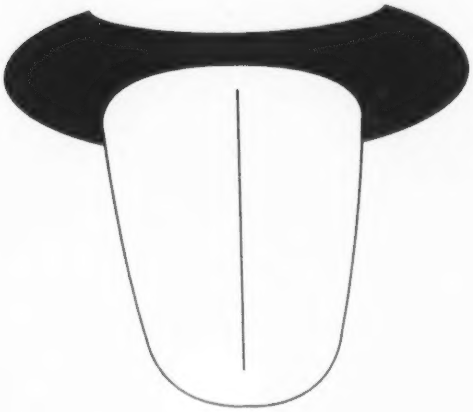
5. Rinse your mouth with water.
6. Place a small amount of lemon juice on your tongue. Try to locate your sour-sensing taste buds. Draw the locations on the drawing.
7. Rinse your mouth with water.
8. Place a small amount of baker's chocolate on your tongue. Try to locate your bitter-sensing taste buds. Draw the locations on the drawing.
9. Rinse your mouth with water.
10. Summarize the locations of your taste receptors:

Salt: ______________________________

Sweet: ______________________________

Sour: ______________________________

Bitter: ______________________________



Name ______________________________ Score __________

OBJECTIVE 6

Calculate the unit price of food items.

INTRODUCTION

The unit price is the cost of a product by weight or size. The unit price can be used for the comparison of brands and sizes. Comparing prices of similar products sold in different sizes is difficult without considering unit pricing. Pricing labels are posted in some stores to help the consumer find the product that costs the least per standard unit of weight or measure. When unit prices are not listed, the consumer can easily calculate unit prices.

EQUIPMENT AND SUPPLIES

- Pencil or pen

INSTRUCTIONS

- Draw conclusions

- Round off numbers
- Calculate with decimals
- Solve practical problems

Calculate the unit price of each of the food items in 1-5 and record your answers in the table. Write a checkmark in the boxes next to the best prices. For items 6-10, identify additional food products and complete the table.

Unit price can be determined by dividing the item's price by the number of standard units in the package or container.

EXAMPLE: The unit price of a 10 oz. can of mixed vegetables that sells for 89 cents can be calculated as follows:

89 (cents) divided by 10 (ounces) = 8.9 cents per ounce

	BRAND	SIZE (oz.)	PRICE ($)	UNIT PRICE (¢ per oz.)	BEST PRICE (☑)
1.	Milk A	1 gal (128 oz.)	$ 3.89		
	Milk B	1/2 gal (64 oz.)	$ 2.09		
2.	Bread A	24 oz. loaf	$ 1.29		
	Bread B	16 oz. loaf	$ 1.19		

BRAND		SIZE (oz.)	PRICE ($)	UNIT PRICE (¢ per oz.)	BEST PRICE (☑)
3.	Sliced peaches A	16 oz. can	$ .89		
	Sliced peaches B	8 oz. can	$ .59		
4.	Peanut butter A	18 oz. jar	$ 1.89		
	Peanut butter B	36 oz. jar	$ 3.79		
5.	Applesauce A	24 oz. jar	$ 1.59		
	Applesauce B	24 oz. 6-pack cups	$ 2.19		
6.					
7.					
8.					
9.					
10.					

ASSIGNMENT SHEET 4

DEVELOPING CONSUMER SKILLS

Name ______________________ Score __________

OBJECTIVE 7

Compare food products.

INTRODUCTION

Your choice of a food product is based on many factors. Sometimes, you may purchase a food product for personal reasons only. However, by comparing similar products you can identify which is the better purchase.

EQUIPMENT AND SUPPLIES

- Pencil or pen

INSTRUCTIONS

- Gain factual information
- Locate resources
- Interpret graphics and symbols
- Use content area vocabulary
- Interpret abbreviations/acronyms

- Take notes

- Calculate with decimals

Visit a local grocery store or food market and choose two varieties of two different food products. Based on your findings, answer the following questions:

1. Food Product:

A. Brand: ______________________

Intended use: ______________________

Nutrition facts data: ______________________

Open dating information: ______________________

Quality: ______________________

Quantity needed: ______________________

Unit price: ______________________

B. Brand: ______________________

Intended use: ______________________

Nutrition facts data: ______________________

Open dating information: ______________________

Quality: ______________________

Quantity needed: ______________________

Unit price: ______________________

Which food product is the better purchase in the following situations: for a single person, for a large family, or for packing lunches? Explain your answer.

2. Food Product:

A. Brand: ______

Intended use: ______

Nutrition facts data: ______

Open dating information: ______

Quality: ______

Quantity needed: ______

Unit price: ______

B. Brand: ______

Intended use: ______

Nutrition facts data: ______

Open dating information: ______

Quality: ______

Quantity needed: ______

Unit price: ______

Which food product is the better purchase in the following situations: for a single person, for a large family, or for packing lunches? Explain your answer.

ASSIGNMENT SHEET 5

DEVELOPING CONSUMER SKILLS

8

Name ______________________________ Score __________

OBJECTIVE 10

Design a strategy for grocery shopping.

INTRODUCTION

Whether you plan meals in advance, fix meals at the last minute, or just occasionally cook for your family, food shopping is an important part of making healthy meals.

EQUIPMENT AND SUPPLIES

- Pencil or pen

INSTRUCTIONS

Plan menus for one day for you and/or your family. Consider any special dietary needs required. Then, make a shopping list of the items you will need for the day. Using the information presented in this unit and the reading materials, explain how you would choose the items to be purchased and why. Include information such as healthy choices, cost-cutting measures, product brand alternatives, open dating information, etc.

☑ **NOTE:** You may use menus from previous units to complete this assignment.

- Gain factual information
- Interpret graphics and symbols
- Use content area vocabulary
- Interpret abbreviations/acronyms

- Use standard grammar, spelling, and capitalization
- State ideas clearly

- Calculate with whole numbers
- Calculate with decimals
- Use English and metric measures

MENUS FOR ONE DAY

Breakfast

Lunch

Supper

Snacks

SHOPPING STRATEGY

	ITEM	QUANTITY	STRATEGY
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

ASSIGNMENT SHEET 6

DEVELOPING CONSUMER SKILLS

8

Name ______________________________ Score __________

OBJECTIVE 12

Profile healthy choice alternatives for menu items.

INTRODUCTION

Many restaurants are changing their menus and cooking styles to suit health-conscious customers. Customers should study the menu carefully, then ask questions and, if desired, request healthy choice alternatives to menu items. Restaurants cannot handle every type of special request, but reasonable changes are often available.

EQUIPMENT AND SUPPLIES

- Menu or copy
- Pencil or pen

INSTRUCTIONS

- Gain factual information
- Distinguish fact, opinion and inference
- Draw conclusions
- Locate resources
- Use content area vocabulary

- State ideas clearly

Obtain a take-out menu or copy a menu from a restaurant. Assume you are making menu selections. Using the information presented in the unit and reading materials, profile healthy choice alternatives for menu items. Put together three sample meals suggesting healthy alternatives to ingredients, menu items, and/or methods of preparation. Identify foods that could be served which are lower in calories, fat, sugars, and/or sodium. Attach a copy of the menu used for the instructor's reference.

MENU MAKE-OVERS

EXAMPLE

Menu Items	Quantity	Your Changes		Reason(s)
Breakfast				
1. Grapefruit	1/2 medium	No Change		
2. Sugar	1 tsp	No Change		
3. Toast, white	1 slice	Whole-wheat cereal	1 cup	Increase nutrients, fiber
with margarine	1 tsp	Milk (1% lowfat)	1 cup	Increase nutrients (dairy group)
and jam	1 tsp	No Change		
4. Coffee	1 cup	No Change		
with nondairy creamer	1 tbsp	Milk (1% lowfat)	1 tbsp	Reduce fat
Lunch				
1. Hotdog, bun, mustard	1	No Change		
		Baked beans w/tomato sauce	1/2 cup	Increase nutrients, fiber
2. Coleslaw:				
Cabbage (raw)	1/2 cup	No Change		
Carrot (grated)	2 tbsp	No Change		
Mayonnaise	1 tbsp	Mayonnaise-type dressing	2 tsp	Reduce fat
3. Dill pickle	1 long strip	Omit pickle		Reduce sodium
4. Cola	12 fl oz	Cola	8 fl oz	Reduce sugars
Dinner				
1. Roast beef, lean and fat	3 oz	Roast beef, lean only	4 oz	Increase nutrients, reduce fat, sodium
with gravy	2 tbsp	Omit gravy		
2. Baked potato with sour cream and butter	1	Baked potato, dry	1	Reduce calories and fat
3. Salad:	3/4 cup			
Iceberg lettuce	1/2 medium	Spinach, raw	1 cup	Increase nutrients
Tomato	2 tbsp	No Change		
Italian dressing		Italian dressing	1 tbsp	Reduce fat, sodium
		Herbed rice, enriched	1/2 cup	Increase nutrients, starch
		Dinner roll, enriched	1 large	Increase nutrients, starch
		Margarine, soft	1 tsp	
4. Apple pie	1/8 of 9" pie	Peach melba		Increase nutrients, reduce fat
5. Coffee, tea, water	As desired	No Change		
Snack				
1. Saltines	4	Whole-wheat crackers	4	Increase nutrients, fiber
2. Swiss cheese	1 oz	No Change		

MENU MAKE-OVERS

Menu Items	Quantity	Your Changes	Reason(s)
Breakfast			
Lunch			
Dinner			
Snack			

ASSIGNMENT SHEET 7

DEVELOPING CONSUMER SKILLS

Name ______________________ Score __________

OBJECTIVE 14

Design a nutrition education campaign.

INTRODUCTION

Nutrition education is important for people of all ages. Despite the variety of nutrition information available, many people do not receive it or know what to do with it. As an informed consumer, you can help others to learn more about nutrition.

EQUIPMENT AND SUPPLIES

- Pencil or pen
- Supplies as needed to create newsletter, brochure or poster

INSTRUCTIONS

- Use standard grammar, spelling, and capitalization
- State ideas clearly
- Use word processing
- Use computer graphics

- Work effectively in a group
- Communicate with clients/customers/patients

- Identify critical elements/issues
- Devise a solution
- Create a finished product
- Evaluate results/outcomes

- Generate ideas

1. Working in groups or teams, design a nutrition education campaign. Identify a specific audience for which the campaign is designed. You are encouraged to be creative and imaginative in approaching this assignment. However, all campaigns must include the following:
    - A defined audience
    - An identified campaign objective
    - A nutrition or consumer education newsletter, brochure, or poster (that you create)
    - Distribution of information to a specific audience (or a plan for distribution)
    - An evaluation of the success of the campaign (if distribution is completed), including how you measured success

    ☑ **NOTE:** Ask if your instructor has any additional guidelines and/or requirements.

2. As a team, complete the form on the following page and submit it to your instructor with your newsletter, brochure, or poster.
3. Design your newsletter, brochure, or poster using a computer and appropriate software (if available).

NUTRITION EDUCATION CAMPAIGN

Group/Team Members: ____________________

____

Audience: ____________________

Campaign Objective: ____________________

____

____

Description (of newsletter, brochure, or poster):

____

____

____

____

____

Distribution Plan:

Steps and Responsibilities – ____________________

____

Timeline(s) – ____________________

Completed (Yes/No)? ____________________

Evaluation:

1. Was your campaign successful? ____________________
2. How did you measure success? ____________________

   ____
3. What did you learn? ____________________

   ____

OBJECTIVE SHEET

PLANNING HOME-PREPARED MEALS

9

INTRODUCTION

When time, preparation skills, and/or equipment are in short supply, convenience products can offer a practical alternative to preparing meals from scratch. However, one has little control over the amount of fat, sugar, sodium, and nutrient content included in ready-to-eat foods. Deciding whether to use convenience products often becomes a trade-off, and the consumer must judge which concerns are most important given the available time or situation.

FOCUS ASSIGNMENTS

Reading Comprehension

- Gain factual information
- Analyze cause and effect
- Draw conclusions

Language

- Use standard grammar, spelling, and capitalization
- State ideas clearly

Composition

- Use complete sentences

FOCUS ASSIGNMENTS

PREREADING:	Scan your recent shopping lists and receipts for food items.
WRITING:	On your own paper, describe your recent decisions about using convenience products. What trade-offs have you made, and why?

UNIT OBJECTIVE

After completing this unit, you will show the following competencies by mastering the activities on the Assignment and Job Sheets and by scoring at least 85% on the Written Test.

SPECIFIC OBJECTIVES

1. Discuss factors influencing the choice of convenience or home-prepared foods.
2. Compare convenience and home-prepared foods. (Assignment Sheet 1)
3. List criteria to consider when planning a menu.
4. Describe ways to achieve variety in meals.
5. Plan a one-day menu of healthy meals and snacks. (Assignment Sheet 2)
6. Plan a complete one-meal menu typical of another country, culture, or U.S. region. (Assignment Sheet 3)
7. Investigate food preparation methods in different countries and cultures. (Assignment Sheet 4)
8. State strategies for making healthy choices while preparing foods.
9. Prepare a food item representing another country, culture, or U.S. region. (Job Sheet)

INFORMATION SHEET

PLANNING HOME-PREPARED MEALS

9

OBJECTIVE 1

Discuss factors influencing the choice of convenience or home-prepared foods.

Optional Activities/ Resources in Instructor's Guide

WORDS YOU SHOULD KNOW	
convenience foods	food products that have been prepared or partially prepared to make home preparation easier and/or faster.

- **Availability of food** – Foods that are available either seasonally or regionally may determine whether they can be purchased fresh or if a pre-packaged convenience method is all that is currently available.
- **Cost of food** – Consideration of the amount of money budgeted for food may influence whether a food is more economically prepared at home or in a convenience product.
- **Equipment needed for preparation** – Many recipes call for specific equipment that if not already owned can be a costly investment.

  ☑ **NOTE:** Nutritious and appealing meals can be prepared with the most limited kitchen equipment.
- **Nutritional value of food** – One of the goals of meal planning is to supply adequate nutrition, whichever food choices are made.
- **Quantity of food** – Determining how much of a food is needed for the number of persons to be served can influence food preparation choices.
- **Skills for food preparation** – Learning and using various food-preparation techniques and recipe terms takes practice, time, and patience.
- **Time needed for preparation** – When it comes to saving time in the kitchen, convenience foods have a lot to offer. However, if time is not a crucial factor, home-prepared meals may offer a more nutritious and appealing method of preparation.

OBJECTIVE 2 **Complete Assignment Sheet 1.**

OBJECTIVE 3 **List criteria to consider when planning a menu.**

Required Activities/
Resources
– Discussion

Optional Activities/
Resources in
Instructor's Guide

WORDS YOU SHOULD KNOW	
menu	a planned agenda of all the foods in a meal, snack, or a day's meals and snacks

- Individual needs
- Nutritional value of foods served
- Resources available
- Variety

OBJECTIVE 4 **Describe ways to achieve variety in meals.**

Required Activities/
Resources
– Explanation

Optional Activities/
Resources in
Instructor's Guide

WORDS YOU SHOULD KNOW	
garnish	small pieces of edible food used to decorate a dish and/or add color

- **Color** – Variety in color will add interest and nutrients to a meal, while a single color meal may look monotonous; try not to repeat any one color on the same plate; use garnishes or toppings to add color and flavor.

- **Food choices** – Include food from each of the major food groups for a variety of different foods and nutrients.

- **Flavor** – Include foods with both strong and mild flavors, avoiding more than one strong flavor at the same meal; balance sweet and sour flavors. Avoid repeating foods having the same flavor in the same meal.

- **Preparation** – Change the way a food is prepared to add variety.

  EXAMPLE: Apples can be served raw, baked, in a pie, or as applesauce.

- **Size and shape** – Contrast size and shape to make a meal more visually appealing; can be accomplished by the preparation method used.

  EXAMPLE: Carrots can be served grated, diced, in circles, or strips.

- **Temperature of each item** – Serve cold, hot, and room temperature foods for contrast and appeal; serving foods at their proper temperatures will also make them taste better.
- **Texture of each item served** – Serve foods that are smooth, crunchy, creamy, hard, crisp, or tender to differ the texture.

OBJECTIVE 5

Complete Assignment Sheet 2.

OBJECTIVE 6

Complete Assignment Sheet 3.

OBJECTIVE 7

Complete Assignment Sheet 4.

OBJECTIVE 8

Optional Activities/
Resources in
Instructor's Guide

State strategies for making healthy choices while preparing foods.

- Avoid preparing high-calorie foods.
- Baste with unsalted broth or fruit juice.
- Brown ground meats without added fat; drain and wash off the fat before mixing with other ingredients.
- Choose cooking methods that use little or no added fat.
- Choose lean meat and trim the visible fat from meat.
- Cook vegetables using steam, microwave, or stir-fry cooking methods.

  ☑ **NOTE:** These methods use little or no added fat and preserve vitamins and color.

- Increase fiber.
- Limit the amount of salt used in food preparation.

☑ **NOTE:** Use herbs, spices, and other flavorings in place of salt.

- Limit the "extra" calorie foods.

  ☑ **NOTE:** Commercially-prepared sauces, gravy, butter, and salad dressings are often high in sugar, sodium, or both.

- Prepare a variety of foods.
- Prepare meat, poultry, or fish without breading or batter.
- Read food labels.
- Remove skin from poultry.
- Substitute healthy alternatives when possible.
- Use low-fat alternatives when possible.

OBJECTIVE 9 **Complete the Job Sheet.**

ASSIGNMENT SHEET 1

PLANNING HOME-PREPARED MEALS

9

Name ______________________ Score __________

OBJECTIVE 2 **Compare convenience and home-prepared foods.**

•

INTRODUCTION

Deciding whether to use convenience food products often becomes a trade-off. Carefully choosing a convenience food or home-prepared food can save time, money, and energy. By reading nutrition and ingredient labels, the nutritional difference can also be seen as significant. A person must judge for himself or herself which of these concerns are most important in a given situation.

INSTRUCTIONS

At home or in a supermarket, locate and identify three different types of one food product. On the lines below write answers in order to compare the convenience and home prepared items.

- Gain factual information
- Draw conclusions
- Make generalizations
- Follow written instructions

- State ideas clearly

- Estimate answers
- Calculate with decimals
- Solve ratio/proportion problems
- Solve practical problems
- Use calculator for computation

- Collect/record information
- Evaluate results/outcomes

EXAMPLES: Pizza – frozen pizza, carry-out pizza, home-prepared pizza

Orange juice – frozen orange juice, fresh purchased orange juice, home-prepared orange juice

Macaroni and cheese – Macaroni and cheese frozen dinner, pre-packaged macaroni and cheese dinner, home-prepared macaroni and cheese

Part 1

Item 1

1. Product name and description ______________________

2. Type of food (circle one) Fresh Frozen Ready-to-Mix Carryout

   Other (describe) ______________________

3. Ingredients ______________________

4. Known additives ______________________

5. Preparation time and methods ______________________

6. Servings ________________________________

7. Cost per serving ________________________________

8. Calories per serving ________________________________

9. Sodium per serving ________________________________

10. Other known nutritional information ________________________________

Item 2

1. Product name and description ________________________________

2. Type of food (circle one) Fresh Frozen Ready-to-Mix Carryout

Other (describe) ________________________________

3. Ingredients ________________________________

4. Known additives ________________________________

5. Preparation time and methods ________________________________

6. Servings ________________________________

7. Cost per serving ________________________________

8. Calories per serving ________________________________

9. Sodium per serving ________________________________

10. Other known nutritional information ________________________________

Item 3

1. Product name and description ________________________________

2. Type of food (circle one) Fresh Frozen Ready-to-Mix Carryout

Other (describe) ________________________________

3. Ingredients ________________________________

4. Known additives ________________________________

5. Preparation time and methods ________________________________

6. Servings ________________________________

7. Cost per serving ________________________________

8. Calories per serving ______________________________

9. Sodium per serving ______________________________

10. Other known nutritional information ________________

Part 2

1. Which product is the most nutritional and healthiest food choice? ______________________________

2. Which product is the most cost-effective product? __________

3. Which product is the lowest in calories? ______________

4. Which product is the highest in calorie content? __________

5. Which product has the lowest sodium content per serving? ______________________________

6. Which product is the most time-efficient? ______________

7. Pick the food type you think is the best choice for this particular food product. Briefly explain why you made this choice.

ASSIGNMENT SHEET 2

PLANNING HOME-PREPARED MEALS

9

Name ______________________________ Score __________

OBJECTIVE 5

Plan a one-day menu of healthy meals and snacks.

INTRODUCTION

When planning a daily menu, you should follow the guidelines displayed in the Food Guide Pyramid. You should also consider your needs, available resources, and ways to achieve variety.

INSTRUCTIONS

- Describe a strategy for preparing the evening meal on one day at your home. Assume you must prepare the meal. On your own paper, outline your strategy. Include at least the following considerations:

  ☐ The menu
  ☐ Food items available
  ☐ Budget available
  ☐ Time available
  ☐ Family member nutritional needs
  ☐ Equipment (pressure sauce pan, crock pot, oven timer, microwave, etc.)
  ☐ Cooking skills
  ☐ Meal service arrangements (at table, in front of television, etc.)
  ☐ Family dining traditions
  ☐ Special schedules: end of workday, end of school day, special or evening events
  ☐ *Food Guide Pyramid* recommendations
  ☐ Other?

  ____

  ____

- Be prepared to present your strategy to the class.

- Gain factual information
- Locate resources
- Use content area vocabulary

- Use standard grammar, spelling, and capitalization
- State ideas clearly
- Use complete sentences

- Calculate with fractions
- Solve ratio/proportion problems
- Make measurements

- Make informative presentations

- Define a problem
- Devise a solution

ASSIGNMENT SHEET 3

PLANNING HOME-PREPARED MEALS

9

Name ______________________________ Score __________

OBJECTIVE 6

Plan a complete one-meal menu typical of another country, culture, or U.S. region.

INTRODUCTION

A "typical" menu will vary by country, culture, or region. How does such a menu compare to the Food Guide Pyramid guidelines?

INSTRUCTIONS

Using the Handout *Food Guide Pyramid*, textbooks, and library resources plan a complete one-meal menu typical of another country, culture, or U.S. region. Include calculation of the cost of the menu items needed.

- Gain factual information
- Locate resources
- Use content area vocabulary

- Calculate with fractions
- Solve ratio/proportion problems
- Make measurements
- Use calculator for computation

- Define a problem
- Devise a solution

Country/Culture/Region: ______________________________

Meal: (Circle one) Breakfast Lunch Dinner

Menu: ____

____

____

____

____

____

____

____

____

____

Menu cost: ____

Resources used:

ASSIGNMENT SHEET 4

PLANNING HOME-PREPARED MEALS

9

Name ______________________________ Score __________

OBJECTIVE 7

Investigate food preparation methods in different countries and cultures.

INTRODUCTION

Not only can menus vary in different countries, cultures, and regions, but preparation methods may vary as well. Does the method make a difference?

INSTRUCTIONS

- Gain factual information
- Select useful resources
- Locate resources
- Use content area vocabulary

- Use standard grammar, spelling, and capitalization

- Make informative presentations

- Collect/record information

- Using textbooks and library resources investigate food preparation methods in different countries and cultures. Identify a food, a dish prepared with that food, and the preparation methods used for three countries or cultures of your choice.
- Write your results on your own paper.
- Be prepared to present your results to the class.

JOB SHEET

PLANNING HOME-PREPARED MEALS

9

Name ______________________________

OBJECTIVE 9

Prepare a food item representing another country, culture, or U.S. region.

⚠ **CAUTION:** You should follow safety guidelines while in the kitchen and food laboratory. Use utensils and tools appropriately when preparing foods.

EQUIPMENT AND SUPPLIES

☑ **NOTE:** Equipment and supplies will vary according to the food item chosen. List the supplies that will be used in your recipe and provide the instructor with a copy of the recipe used.

____

____

____

____

____

____

____

____

____

____

- Locate resources
- Follow written instructions
- Use content area vocabulary
- Interpret abbreviations/ acronyms

- Calculate with fractions
- Solve ratio/proportion problems
- Make measurements

- Create a finished product

PROCEDURE

	Yes	No
1. Identify the country, culture, or U.S. region the food item represents.	____	____
2. Read the recipe carefully; review recipe cooking terms.	____	____

	Yes	No
3. Gather ingredients needed for the recipe.	____	____
4. Gather necessary utensils and tools.	____	____
5. Complete any preliminary cooking preparations.	____	____
6. Measure ingredients to the exact amounts called for.	____	____
7. Follow mixing and cooking and/or baking directions.	____	____
8. Clean tools, utensils, and kitchen work area.	____	____
9. Return tools and utensils to proper storage places.	____	____

SKILL TEST RECORD

EVALUATOR'S COMMENTS

____

____

____

PRODUCT EVALUATION

Evaluator note: Rate the student on the following criteria by circling the appropriate numbers. Each criterion must receive a rating of "3" or higher to demonstrate student mastery. (See Key below.) A student who is unable to demonstrate mastery should review the material and submit another product for evaluation.

Criteria:				
Identified the country, culture, or U.S. region the food item represents.	4	3	2	1
Read the recipe carefully; reviewed recipe cooking terms.	4	3	2	1

Gathered ingredients needed for the recipe.	4	3	2	1
Gathered necessary utensils and tools.	4	3	2	1
Completed any preliminary cooking preparations.	4	3	2	1
Measured ingredients to the exact amounts called for.	4	3	2	1
Followed mixing and cooking and/or baking directions.	4	3	2	1
Cleaned tools, utensils, and kitchen work area.	4	3	2	1
Returned tools and utensils to proper storage places.	4	3	2	1

AVERAGE RATING

Evaluator note: To obtain an average rating for the Competency Profile, total the points in Product Evaluation and divide by the total number of criteria. Circle the rating on the Key.

KEY

4 **Skilled** – Can perform job with no additional training.
3 **Moderately Skilled** – Has performed job during training program; limited additional training may be required.
2 **Limited Skill** – Has performed job during training program; additional training is required to develop skill.
1 **Unskilled** – Is familiar with process, but is unable to perform job.

EVALUATOR'S COMMENTS

____

____

____

OBJECTIVE SHEET

SERVING AND DINING ETIQUETTE

10

INTRODUCTION

Etiquette can be defined as guidelines for correct behavior. Developing serving and dining etiquette skills takes effort and practice. Most people want to know how to behave in the most appropriate manner. When everyone has the same understanding of proper etiquette, people can feel comfortable knowing their behavior is socially acceptable to others.

FOCUS ASSIGNMENTS

Reading Comprehension
- Gain factual information
- Analyze cause and effect
- Draw conclusions

Language
- Use standard grammar, spelling, and capitalization
- State ideas clearly

Composition
- Use complete sentences

FOCUS ASSIGNMENTS	
PREREADING:	Read about etiquette. Find books and magazine articles that deal with etiquette.
WRITING:	On your own paper, answer these questions: 1. What are some guidelines for serving and dining etiquette? 2. Do you agree that these guidelines represent socially acceptable behavior? Why or why not? Can you think of alternatives that would also be acceptable?

UNIT OBJECTIVE

After completing this unit, you will show the following competencies by mastering the activities on the Assignment and Job Sheets and by scoring at least 85% on the Written Test.

SPECIFIC OBJECTIVES

1. Distinguish among styles of meal service.
2. Identify types and techniques of table settings.
3. Set a table. (Job Sheet 1)
4. Clear a table. (Job Sheet 2)
5. Discuss the relationship of dining etiquette to success in the workplace.
6. Select from a list guidelines for good table manners.
7. Identify proper dining etiquette when using formal table settings.
8. Complete a list of guidelines for proper restaurant etiquette.
9. Profile meal service and dining etiquette in another country, culture, or United States region. (Assignment Sheet)

SERVING AND DINING ETIQUETTE

OBJECTIVE 1

Distinguish among styles of meal service.

Required Activities/
Resources
– Discussion

Optional Activities/
Resources in
Instructor's Guide

WORDS YOU SHOULD KNOW	
host	a male who entertains guests, at a social or business occasion
hostess	a female who entertains guests, at a social or business occasion

- **Buffet** – Convenient method for serving large groups of people, where food and tableware are placed on a serving table and the diners pass by the serving table and serve themselves before sitting down

- **Family** – Informal and simple style of service where food is placed on the table in large serving dishes and the diners pass the serving dishes to each other after serving themselves

- **Formal** – The most elaborate style of service, where there are generally a number of courses served by a table attendant; food is served to seated diners on individual plates

- **Modified English** – Food for the main course is brought to the table in serving dishes and placed beside a stack of dinner plates that are in front of the host or hostess; the host or hostess places a main course serving on each plate and passes it to the guests

  ☑ **NOTE:** The host or hostess will pass the plates to the right, and the first plate should be passed down to the person at the end of the table. When all of the guests on the right side of the table have been served, the host or hostess serves those on the left, then fills his or her plate last.

- **Plate** – Food is portioned out on individual plates in the kitchen and brought to the table; style commonly used in restaurants

OBJECTIVE 2

Required Activities/
Resources
- Handout 1
- Transparency Masters 1 and 2

Optional Activities/
Resources in
Instructor's Guide

Identify types and techniques of table settings.

FIGURE 1

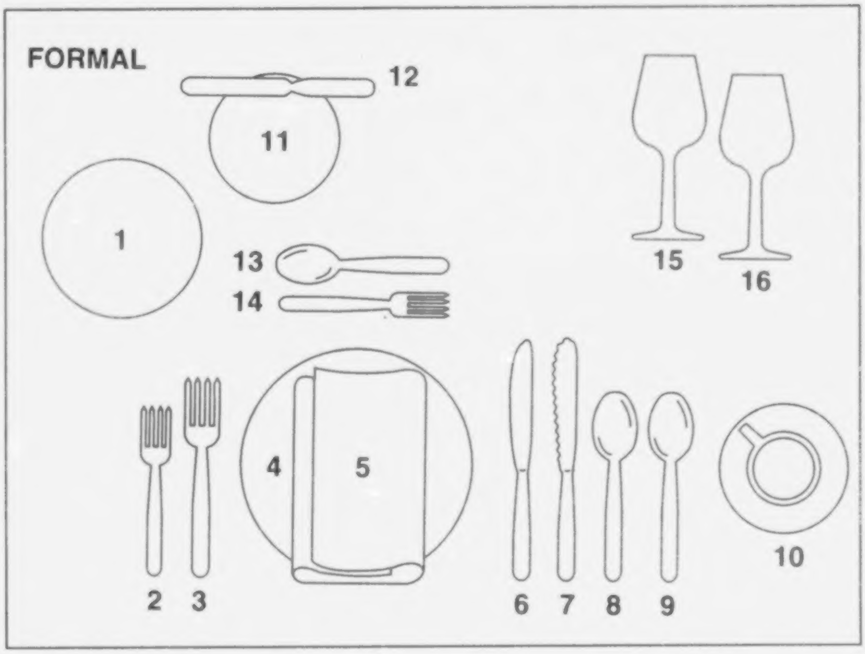


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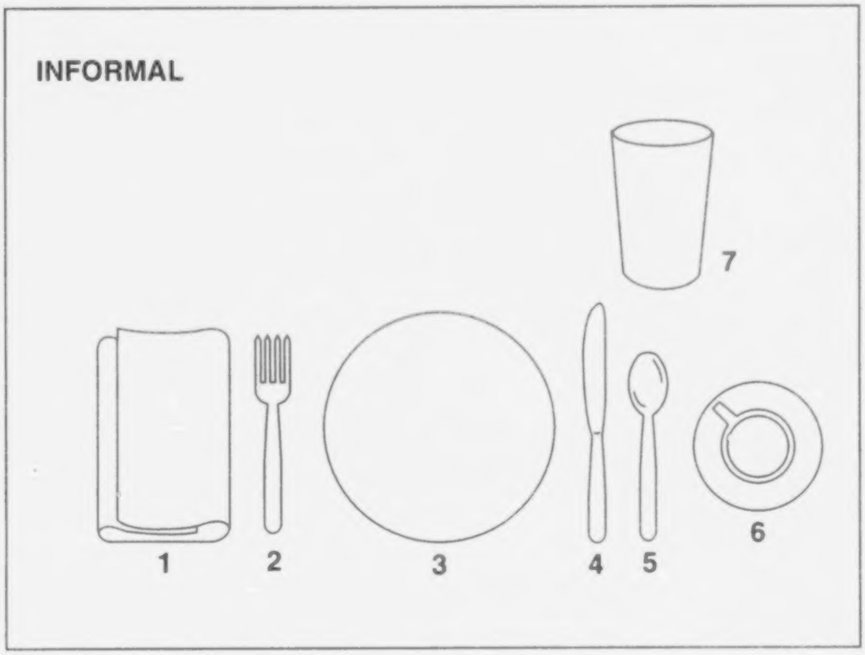
FIGURE 2



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OBJECTIVE 3

Complete Job Sheet 1.

OBJECTIVE 4

Complete Job Sheet 2.

OBJECTIVE 5

Discuss the relationship of dining etiquette to success in the workplace.

Required Activities/
Resources
– Discussion

Optional Activities/
Resources in
Instructor's Guide

WORDS YOU SHOULD KNOW	
manners	polite behavior based on thoughtfulness, common sense, and courtesy

- Many business occasions include a meal. A person's table manners and dining etiquette say a great deal about a person to other people, including employers and business associates. Good manners show consideration and respect for others, and are a reflection of personality and social "know-how." Knowing correct table manners can help a person feel and appear more confident, relaxed, and skilled; desirable characteristics an employer often looks for in an employee.

OBJECTIVE 6

Select from a list guidelines for good table manners.

Required Activities/
Resources
– Video

Optional Activities/
Resources in
Instructor's Guide

📺 Watch the videotape *Fundamental Table Etiquette.*

- Be on time for meals.
- Begin eating using the outside pieces of flatware first.
- Contribute to table conversation, avoiding controversial or disagreeable subjects, and never talking when there is food in your mouth.
- Leave the dishes as they are on the table; neither push plates back nor stack the dishes at the table.
- Let women be seated first.
- Place dinner napkin in your lap after the host or hostess does so.

  ☑ **NOTE:** Large dinner napkins should be laid in your lap half open with the edges toward the body. Small luncheon napkins may be fully opened.

- Place napkins on the table to the left of your plate when the meal is finished; neither refold the napkin nor wad it up, but neatly place it.
- Place used flatware across the edge of your plate, not on the table or table cloth.
- Put down silverware and wipe your mouth before taking a drink or talking.
- Sample foods before adding any extra seasonings.
- Sit with arms resting in the lap, not leaning or resting elbows on the table.
- Take spoons out of glasses or cups before drinking from them.
- Wait until everyone has been served to begin eating.

  ☑ **NOTE:** When at a banquet or in a very large group, one may begin eating after several people in close proximity have been served.

- Watch the host or hostess and follow his or her lead.
- When eating at a school cafeteria or fast food restaurant, clear your table area and throw away disposable items.
- When passing foods at the table: serve yourself last, pass foods to the right, pass foods for second helpings the shortest route, pass food items even when you do not choose the food.

OBJECTIVE 7

Identify proper dining etiquette when using formal table settings.

Optional Activities/
Resources in
Instructor's Guide

☑ **NOTE:** In addition to the general table manners discussed in objective 6, the following guidelines should be used when eating a formal meal.

- Break bread into moderate sized pieces to be eaten; place a pat of butter on the bread plate and butter one or two bites of bread at a time.
- Dip soup spoons away from the body; rest the soup spoon in the plate under the bowl when not in use or when finished.

- Excuse oneself from the table to remove food items lodged between teeth; toothpicks are never appropriate at the table.

- Place used flatware on the saucer or plate diagonally from the upper left to the lower right, with the handles slightly extended over the edge when finished with each course.

- Start using the flatware that is farthest from the plate and work in toward the plate.

  ☑ **NOTE:** The only exception is if the table is set incorrectly.

- Turn the coffee cup upside down if coffee is not desired.

OBJECTIVE 8

Required Activities/
Resources
– Video

Optional Activities/
Resources in
Instructor's Guide

Complete a list of guidelines for proper restaurant etiquette.

☐ Watch the videotape *Fundamental Restaurant Etiquette.* Complete the sentences by writing the information obtained from the video in the blanks provided.

- **Arriving at the Restaurant**

1. If you arrive at the restaurant first, ____________________ __________.
2. The __________________ of your group should communicate with restaurant staff.
3. If your group does not have a __________________, select a __________________.
4. When walking to the table, __________ go first, __________ _______ follow.
5. If you are not satisfied with where you have been seated, ____.
6. ______________________ can be draped over chair backs.
7. ______________ are placed on laps immediately.
8. __________________ seat themselves.

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- **Ordering the Meal**

1. Be considerate of your host's ______________.
2. Two separate meals can be split in half for sharing - request this __________________.
3. Your ______________ can answer questions about the menu.
4. Knowledge of a restaurant's food can ___________________ _________________.
5. You may request ______________ checks when ordering.
6. For business dinners, the _______________________ pays.

- **During the Meal**

1. When dining with a small group, wait ___________________ ______________ to begin eating.
2. Place empty paper wrappers ___________________________ ________.
3. Wipe your mouth before ______________________.
4. Excuse yourself to fix ___________________.
5. When leaving the table, place napkin unfolded _________ ___________________.
6. Keep _____________________________________ off the table.
7. When sampling someone elses food, use ________________ ________________________.

- **Following the Meal**

1. Leave an appropriate _________ based on the service received.

OBJECTIVE 9 **Complete the Assignment Sheet.**

ASSIGNMENT SHEET

SERVING AND DINING ETIQUETTE

10

Name ______________________________ Score __________

OBJECTIVE 9

Profile meal service and dining etiquette in another country, culture, or United States region.

INTRODUCTION

Food customs and meal patterns around the world are as varied as the people who live there. Regional differences exist even within countries. Customs often reflect the culture, climate, and geography of an area, and are influenced by those people who first settled there.

INSTRUCTIONS

Using the information found in your text book readings, library resources, and personal interviews, profile meal service and dining etiquette in another country, culture, or United States region. Originality and creativity are encouraged, but the profile must include the following information:

- What are typical foods of the chosen area?
- How are meals served? What special utensils might be common?
- What style of food service is typical?
- What group or groups of people influenced the cuisine?
- What meal patterns are typical of the people in the area?

☑ **NOTE:** You should consult with your instructor for other requirements. This Assignment Sheet will be graded on the appropriate application of unit and resource information. Spelling and grammar usage will also be evaluated. A list of references used to write the report should be included.

Reading Comprehension
- Gain factual information
- Draw conclusions

Research and Reference
- Select useful resources
- Locate resources

Language
- Use standard grammar, spelling, and capitalization
- State ideas clearly

Composition
- Use complete sentences
- Develop preliminary outline

Research
- Create bibliography

JOB SHEET 1

SERVING AND DINING ETIQUETTE

10

Name ______________________________

OBJECTIVE 3

Set a table.

EQUIPMENT AND SUPPLIES

- Flatware
- Dinnerware
- Glassware
- Napkin
- Centerpiece (optional)
- Candles (optional)
- Placemat (optional)

PROCEDURE

- Create a finished product

Job Acquisition/ Development

- Master specific job task/procedure

	Yes	No
1. Develop a sample menu.	____	____
2. Identify style of meal service.	____	____
3. Place required pieces of flatware.	____	____
4. Place required pieces of dinnerware.	____	____
5. Place required glassware.	____	____
6. Fold and place napkin.	____	____

SKILL TEST RECORD

EVALUATOR'S COMMENTS

____

____

____

PRODUCT EVALUATION

Evaluator note: Rate the student on the following criteria by circling the appropriate numbers. Each criterion must receive a rating of "3" or higher to demonstrate student mastery. (See Key below.) A student who is unable to demonstrate mastery should review the material and submit another product for evaluation.

Criteria:				
Menu developed	4	3	2	1
Meal service identified	4	3	2	1
Cover correctly set	4	3	2	1
Napkin properly placed	4	3	2	1

AVERAGE RATING

Evaluator note: To obtain an average rating for the Competency Profile, total the points in Product Evaluation and divide by the total number of criteria. Circle the rating on the Key.

KEY

4 **Skilled** – Can perform job with no additional training.

3 **Moderately Skilled** – Has performed job during training program; limited additional training may be required.

2 **Limited Skill** – Has performed job during training program; additional training is required to develop skill.

1 **Unskilled** – Is familiar with process, but is unable to perform job.

EVALUATOR'S COMMENTS

____

____

____

JOB SHEET 2 SERVING AND DINING ETIQUETTE

10

Name ______________________________

OBJECTIVE 4

Clear a table.

EQUIPMENT AND SUPPLIES

- Handout 2
- Table cover
- Tray or portable cart

PROCEDURE

- Master specific job task/procedure

	Yes	No
1. Clean cover from the left side, carrying two dishes at a time.	____	____
2. Carry plate and dishes away to a tray.	____	____
3. Remove water and beverage glasses from the right side of the guest.	____	____
4. Using a folded napkin in your left hand, brush crumbs from the table onto a plate in your right hand.	____	____
5. Carry tray of soiled dishes to the kitchen.	____	____

SKILL TEST RECORD

EVALUATOR'S COMMENTS

____

____

____

PRODUCT EVALUATION

Evaluator note: Rate the student on the following criteria by circling the appropriate numbers. Each criterion must receive a rating of "3" or higher to demonstrate student mastery. (See Key below.) A student who is unable to demonstrate mastery should review the material and submit another product for evaluation.

Criteria:				
Dishes from cover properly cleared	4	3	2	1
Tray used	4	3	2	1
Crumbs properly removed	4	3	2	1
Tray removed	4	3	2	1

AVERAGE RATING

Evaluator note: To obtain an average rating for the Competency Profile, total the points in Product Evaluation and divide by the total number of criteria. Circle the rating on the Key.

KEY

4 **Skilled** – Can perform job with no additional training.
3 **Moderately Skilled** – Has performed job during training program; limited additional training may be required.
2 **Limited Skill** – Has performed job during training program; additional training is required to develop skill.
1 **Unskilled** – Is familiar with process, but is unable to perform job.

EVALUATOR'S COMMENTS

____

____

____

OBJECTIVE SHEET

11

EXPLORING CAREERS

INTRODUCTION

The choice of a career is one of the most important decisions that you can make. However, career decisions are not easy; they are the result of careful searching and planning. Success in finding a rewarding career will depend on the work you put into a career search. By following the steps in career decision-making and using sources of occupational information, you can develop a personal career plan.

FOCUS ASSIGNMENTS

Reading Comprehension
- Gain factual information
- Analyze cause and effect
- Draw conclusions

Language
- Use standard grammar, spelling, and capitalization
- State ideas clearly

Composition
- Use complete sentences

FOCUS ASSIGNMENTS

PREREADING:	Read about careers related to food science and personal nutrition. Use your textbook, reference book, magazines, or other resources.
WRITING:	Write a one-page essay over careers related to food science and nutrition. The information may be a general overview of careers related to food science and nutrition or may be about a specific topic or career.

UNIT OBJECTIVE

After completing this unit, you will show the following competencies by mastering the activities on the Assignment Sheets and by scoring at least 85% on the Written Test.

SPECIFIC OBJECTIVES

1. Describe career opportunities related to food science and nutrition.
2. List personal qualifications needed for food science and nutrition-related careers.
3. List steps in making career decisions.
4. Profile food science and nutrition-related businesses in the community. (Assignment Sheet 1)
5. Summarize personal interests. (Assignment Sheet 2)
6. Profile career opportunities. (Assignment Sheet 3)
7. Compare career opportunities. (Assignment Sheet 4)
8. Develop a personal career plan. (Assignment Sheet 5)

INFORMATION SHEET

EXPLORING CAREERS

11

OBJECTIVE 1

Required Activities/
Resources
– Discussion

Optional Activities/
Resources in
Instructor's Guide

Describe career opportunities related to food science and nutrition.

Discuss the question "What are career opportunities relating to food science and nutrition?"

- **Food service industry** – all organizations and areas involved in the preparation and serving food outside the home; may be in a commercial or non-commercial business

  EXAMPLES: Food preparation, customer service representative, sanitation, management

- **Food science and/or technology** – the use of science and engineering to develop new food products, packaging, and food handling/processing methods to improve the quality of processed foods and ensure an acceptable and safe food supply

  EXAMPLES: Biotechnologist, water control specialist, laboratory technician, food technologist, agriculturist

- **Family and consumer sciences** – work that provides programs, products and services that help improve the quality of life for families and individuals

  EXAMPLES: Dietitian, family and consumer sciences instructor, consumer affairs representative, Cooperative Extension Service home economist, nutritionist

OBJECTIVE 2

Optional Activities/
Resources in
Instructor's Guide

List personal qualifications for food science and nutrition-related careers.

- Apply computer technology
- Apply leadership skills
- Be dedicated to the job
- Communicate effectively
- Get along with others

- Listen to others
- Maintain ones own personal health
- Maintain professional appearance
- Recognize the relationship between food consumption and health
- Understand the chemical and physical nature of food
- Understand the science of human nutrition
- Understand basic food and nutrition principles and food preparation techniques
- Use food preparation equipment correctly
- Value the health of others

OBJECTIVE 3

Optional Activities/
Resources in
Instructor's Guide

List steps in making career decisions.

WORDS YOU SHOULD KNOW

aptitude	a natural talent
hobby	a favorite pursuit or interest, often enjoyed outside the occupation
skill	the ability to do something well; skills may be developed through training and practice

1. Identify and evaluate personal characteristics, aptitudes, skills, and hobbies.
2. Compile a list of working conditions of personal importance.
3. Research careers of interest.
4. Set challenging but realistic career goals.
5. State goals specifically and in writing.
6. Set a time schedule for meeting goals.
7. Obtain needed training and/or education.
8. Pursue a position in the field of interest.

OBJECTIVE 4	**Complete Assignment Sheet 1.**
OBJECTIVE 5	**Complete Assignment Sheet 2.**
OBJECTIVE 6	**Complete Assignment Sheet 3.**
OBJECTIVE 7	**Complete Assignment Sheet 4.**
OBJECTIVE 8	**Complete Assignment Sheet 5.**

ASSIGNMENT SHEET 1

EXPLORING CAREERS

11

Name ______________________ Score __________

OBJECTIVE 4

Profile food science and nutrition-related businesses in the community.

INSTRUCTIONS

Functional Reading
- Follow written instructions

Language
- Use standard grammar, spelling, and capitalization
- State ideas clearly

Composition
- Use complete sentences
- Compose reports

Select two food science and/or nutrition-related businesses in the community. The selections may be any business or agency that involves food science or nutrition. Write a one-page summary of the business, answering the questions listed below. You may use personal interviews, telephone interviews, pamphlets or brochures, or other sources. If conducting personal or telephone interviews, be sure to use proper business etiquette. Be prepared to discuss your findings with the class.

- Name of the business or agency
- How it relates to food science or nutrition
- Specific services or products offered
- Approximate number of employees
- How the business or agency advertises its products or services
- Additional information

ASSIGNMENT SHEET 2

EXPLORING CAREERS

11

Name ________________________________ Score __________

OBJECTIVE 5 **Summarize personal interests.**

INSTRUCTIONS

- Answer the following questions and statements about personal interests.
- Think about how these interests might relate to a career involving food science or nutrition.
- Be prepared to explain your answers to your class.

Language
- State ideas clearly

Job Search/Selection
- Analyze personal occupational aptitudes/preferences

1. List hobbies, interests, and clubs in which you are involved.

____

____

____

____

2. How might these hobbies, interests, and clubs be helpful in a career involving the food industry?

____

____

____

____

3. List favorite courses and preferred classes.

4. How might these courses relate to or provide background for a career involving food science or nutrition?

5. Are your willing to continue your education after high school? In what way?

6. What post-high school training and/or educational opportunities are available to you?

7. How many hours per week are you willing to work?

____

8. Do you prefer to work with other people or by yourself?

____

9. What do your interests indicate to you about possible career choices involving the food industry?

____

____

____

____

10. List three careers involving food science and/or nutrition that are of interest to you.

____

____

____

11. Would you volunteer your services to gain experience or test your suitability for a career in foods?

____

12. Would you prefer to pursue a career outside of fields involving foods? If so, identify the career and give your reasons for pursuing it.

____

____

____

____

____

ASSIGNMENT SHEET 3

EXPLORING CAREERS

11

Name ______________________________ Score __________

OBJECTIVE 6

Profile career opportunities.

INTRODUCTION

There are many different types of careers related to food science and nutrition. Knowing the careers that are available to you will help you to make a better decision about your future.

INSTRUCTIONS

Functional Reading
- Follow written instructions

Language
- Use standard grammar, spelling, and capitalization
- State ideas clearly

Composition
- Use complete sentences

Job Search/Selection
- Analyze personal occupational aptitudes/preferences
- Investigate employment prospects of a career field/occupation
- Investigate training requirements for a career field/occupation
- Compare/evaluate career options

Part 1

Using a variety of resources such as government publications, trade journals, magazines and newspapers, personal interviews, etc., research the various careers available that relate to food science and nutrition. Select careers that you might be interested in that could involve the food industry. Several examples are given below:

- Chef
- Dietician
- Family and consumer sciences instructor
- Production plant manager
- Researcher

Part 2

Answer the questions below.

1. Select three careers that are of interest to you.

____

____

____

2. Why do these careers interest you?

3. What requirements and special qualifications are needed for these careers?

4. What do you think the job outlook will be for these careers?

5. How do these careers involve food science and/or nutrition?

ASSIGNMENT SHEET 4

EXPLORING CAREERS

11

Name ______________________________ Score __________

OBJECTIVE 7

Compare career opportunities.

INSTRUCTIONS

Select two careers that involve food science and/or nutrition. Answer the following questions using a variety of resources such as government publications, trade journals, magazines and newspapers, personal interviews, etc.

Functional Reading
- Follow written instructions

Language
- Use standard grammar, spelling, and capitalization
- State ideas clearly

Composition
- Use complete sentences

Job Search/Selection
- Analyze personal occupational aptitudes/preferences
- Investigate employment prospects of a career field/occupation
- Investigate training requirements for a career field/occupation
- Compare/evaluate career options

1. List the two careers.

____

____

2. What educational or training requirements are needed for the careers?

____

____

____

____

3. What salary ranges do the careers offer?

____

____

4. What are the working conditions of the careers?

5. What advantages and disadvantages do you believe the careers offer?

6. What is the job outlook for the careers?

7. What is one source of information for each career?
EXAMPLE: Professional associations

8. Which career would you prefer to pursue? Why? If neither career, explain why not.

ASSIGNMENT SHEET 5

EXPLORING CAREERS

Name ______________________________ Score __________

OBJECTIVE 8

Develop a personal career plan.

INSTRUCTIONS

- Develop your personal career plan using the form provided.
- Include additional information and/or supplemental material as needed to complete your plan.

Language
- State ideas clearly

Job Search/Selection
- Analyze personal occupational aptitudes/preferences
- Develop personal career path

PERSONAL CAREER PLAN

Personal Characteristics, Aptitudes, Skills, and Hobbies

1. ____________________
2. ____________________
3. ____________________
4. ____________________
5. ____________________
6. ____________________

Working Conditions (of personal importance)

1. ____________________
2. ____________________
3. ____________________

Careers of Interest

1. ____________________
2. ____________________
3. ____________________

Career Goals

1. ____________________
2. ____________________
3. ____________________

Training/Education Required (for Career Goals)

____

____

____

Action Plan (for reaching Career Goals)

Steps:	*Completion Dates:*
1. ______	______
2. ______	______
3. ______	______
4. ______	______
5. ______	______
6. ______	______
7. ______	______
8. ______	______

Resources Needed (for completing the steps above):

______

______

______

______

Your Signature ______ Date ______